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Facts About Vinyl Quality

Furniture Designer of the Month

DECEMBER 1959

Furniture Engineering

A Comparison of Furniture Finishes

FURNITURE Design & Manufacturing

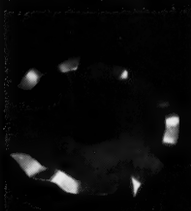
Special Report
KROEHLER'S NEW CULTURED WOOD
Exclusive Photos

SPECIAL-PURPOSE FURNITURE FASTENERS

and self-fastening devices

The fasteners and other devices shown here are designed for two principal purposes ... to speed in-plant assembly operations ... or to make possible K-D shipment of furniture for assembly by unskilled store personnel or by the ultimate purchaser. United-Carr has pioneered in the field of fasteners specially designed for furniture production and, if you have a volume production problem that requires fasteners of a new or special design, United-Carr's engineering staff is at your service.

LEG LOCK

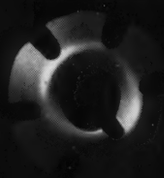


Allows accurate alignment of square legs on K-D furniture for the first time. Prongs dig into both leg and tabletop or chair seat, lock securely yet permit adjustment during locking action. Write for details and samples.

LOW COST FERRULE GLIDE

Designed for tubular furniture. Steel shell is plated with gloss-finish brass. Durable plastic base swivels, tilts, glides smoothly. Attachment is by spring steel clip.

HELIX WASHERS



Provide positive anchorage for bolt or threaded rod in metal tubing ... push in easily ... can be removed only with substantial force ... ideal for attaching handles or other tubular components ... available to fit wide range of thread and tubing sizes.

CAPPED RATCHET PLATES

Decorative hub caps for furniture and wheel goods ... eliminate nuts and cotter pins. Available in range of sizes, light or heavy action for push-on or hammered assembly ... aluminum or nickel-plated caps. Can be embossed with special designs.

PLUG BUTTON GLIDE

Snaps into tube ends as decorative closure or trim piece ... can also be used as ultra-low cost glide. Chrome-plated steel ensures durability. Spring steel fingers ensure secure attachment.

SUPER SILENT SWIVEL GLIDE

Floats on rubber, slides on steel base, completely insulated from chair or table by rubber cushion. Teeth hold glide in tubular metal legs. Swivel base allows glide to stand flat even though legs slope. Also available without swivel feature.

SUPER SILENT SWIVEL GLIDE

Same construction as round-based glide at left but conical configuration harmonizes better with some modern furniture styles and is ideal for use on school furniture.

LONG PRONG TEENUT

Has curved prongs that provide twisting action for extra holding power as Teenut is driven into bored hole. Components can be repeatedly assembled and disassembled ... provides steel threads in wood ... permits K-D shipment.

SHORT PRONG TEENUT

Can be held in place with brads until final attachment of components by dealer or purchaser. Short prongs prevent turning when hanger bolt is tightened. More than 600 different Teenut designs available to suit your particular requirements.

PETAL NUT

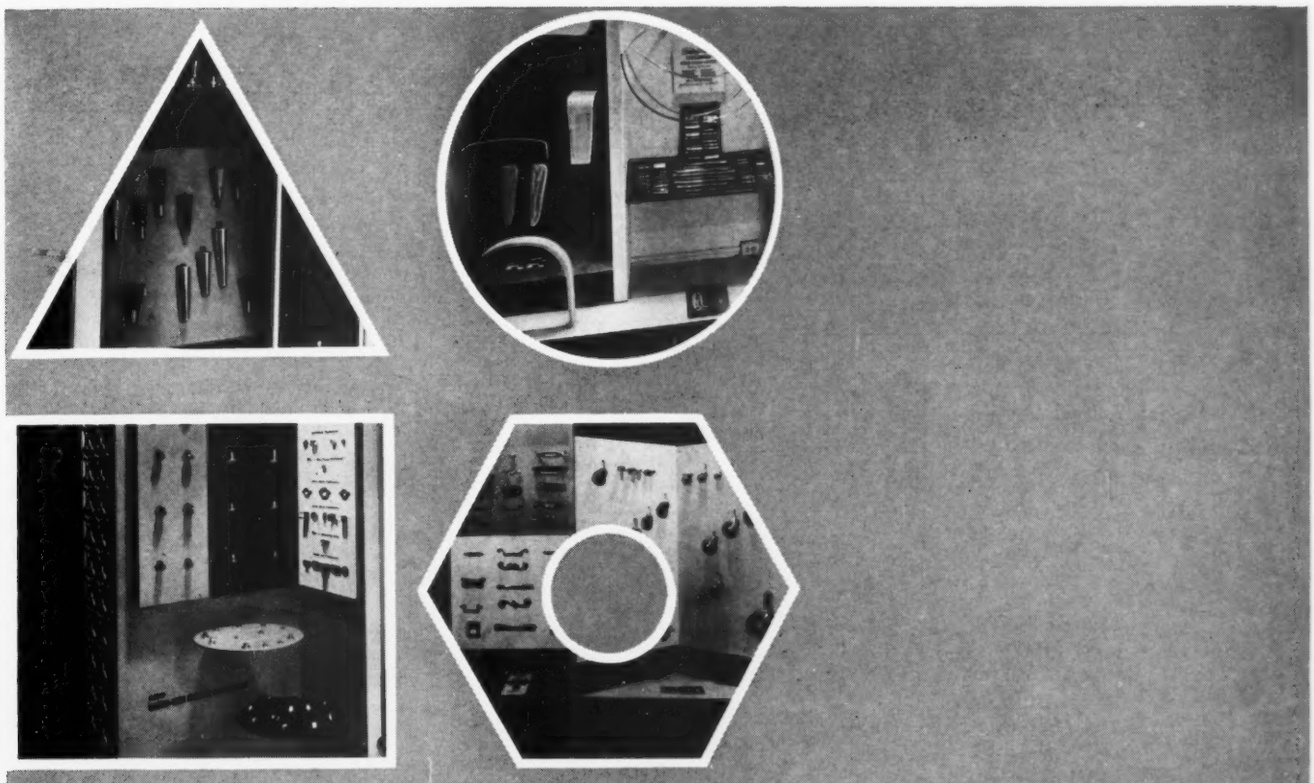
Low cost blind fastener for wood furniture. Easily driven into ⅜" x ⅜" hole with hammer and simple driving tool. ¼, 20 size withstands 1400 lbs. direct pull in face grain oak.

MAKERS OF DOT FASTENERS

CARR FASTENER COMPANY

Division of UNITED-CARR Fastener Corp., Cambridge 42, Mass.

In Canada · Gage Avenue and Beach Road, Hamilton, Ontario



"see it all"

at the nation's permanent exhibition center
for component parts and supplies used
in the design and manufacture of furniture,
kitchen cabinets, lamp and lighting fixtures.
Free services include: sources, information,
catalogues and samples.
Write, phone, or visit for all of your needs.

Exhibition hours: Mon. to Fri. 9:00 A.M. to 5:30 P.M.

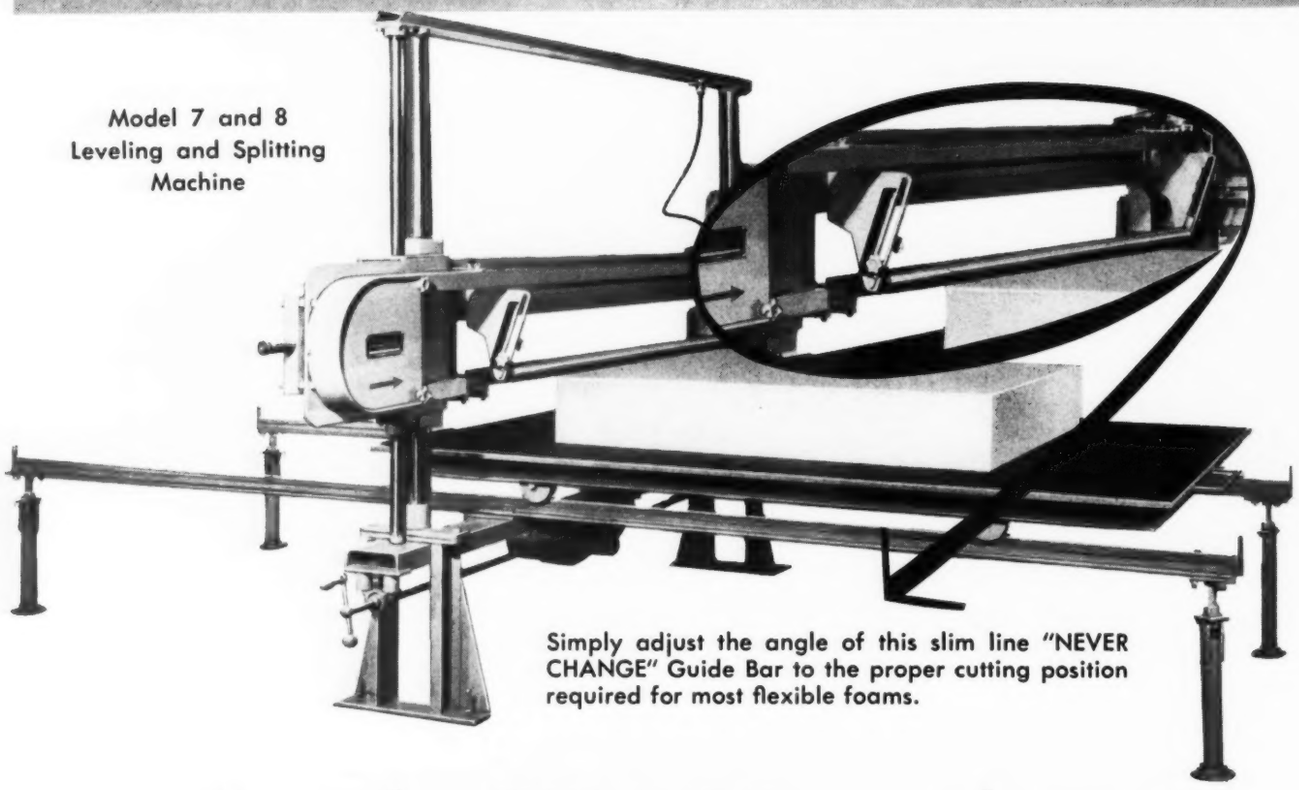
designer displaycase

ONE PARK AVENUE NEW YORK 16, N.Y.

DURING NEW YORK FURNITURE SHOW, JAN. 18 TO 22; EXHIBITION HOURS: 9:00 A.M. TO 8:00 P.M.

Most VERSATILE SPLITTER On The *MARKET!*

Model 7 and 8
Leveling and Splitting
Machine



Simply adjust the angle of this slim line "NEVER CHANGE" Guide Bar to the proper cutting position required for most flexible foams.

and only FEMCO makes it!

When you buy a Splitting machine you need a VERSATILE machine—one that will do a real Splitting job on most materials. And the versatility of FEMCO Splitters is one of our chief advantages over competition.

Model 7 and 8 Leveling and Splitting Machine (above) has our slim line "NEVER CHANGE" Guide Bar and because of a new swivel bracket feature you can adjust the blade angle and blade exposure to suit the exact stock you are splitting—foam rubber, sponge rubber, polyurethane foam, polyvinyl foam, polyester foam, bonded foam, rubberized hair, neoprene foam, etc.

Just a simple adjustment and you get top production and efficiency in cutting many different stocks with one blade and on one machine!

This machine also offers as optional equipment such outstanding FEMCO features as automatic indexing and a power-driven table. And FEMCO has also developed a new feature—a coating process for the Guide Bar which prevents materials from "dragging" against the metal cutting surface!

With a FEMCO Splitter you can level and split more materials more accurately than with any other Splitter on the market today! And FEMCO Splitters are priced right—more value for your dollar. Write or call us now!

1917 42nd YEAR OF SERVICE 1959

The FALLS ENGINEERING AND MACHINE CO.

CUYAHOGA FALLS, O.

There's a FEMCO Sales-Service Representative in your area. Write us and he will stop and see you.

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OUR COLOR COVER: Shown are dining room and bedroom furniture from Kroehler's "New Idea" collection, one of the first lines to use "Cultured Wood" in its construction. Illustration Courtesy Kroehler Mfg. Co. Story on page 11.

INSET: Technician tests vinyl materials for upholstery. Photo Courtesy Federal Industries, Inc. Article on what constitutes vinyl quality begins on page 20.

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Editorial

The department of laurels

During the past year there have been many important contributions to the betterment of the furniture manufacturing industry. Among those that come to mind . . . and there are certainly many others . . . include the works of Eddy Feldman, while Executive Secretary of the Furniture Manufacturers' Association of California, for his display of leadership in employee training programs and labor relations.

We also commend John M. Snow, Executive Vice President, National Association of Furniture Manufacturers, for again presenting a successful supply show and developing another helpful sales planning guide for his members.

Moving to the South, we recognize the achievements of C. P. Reinhardt, past president of the Production and Cost Division, and Joseph E. Huffman, past president of the Sales and Marketing Division of the Southern Furniture Manufacturers' Association. And we tip our editorial hat to James T. Ryan, Executive Vice President of that association for another splendid job of industry service.

Among the furniture manufacturing concerns, laurels are certainly due Kroehler Manufacturing Company . . . not only for its achievement in developing a new furniture material, but for generosity in telling of and showing its facilities to the industry. It was noteworthy that executives of closest competitors were among the honored guests at the formal opening of the new "Cultured Wood" plant.

It is very difficult to occupy the position of the biggest in any field . . . but this year Kroehler has met the challenge with flying colors.

These and other contributions are healthy signs. We recognize that real competition for the consumer dollar is not from within but from without. By making this industry stronger through sharing of knowledge and ideas, every company and its employees can achieve the greatest level of prosperity ever known to this field.

Truly, a new day is dawning for the furniture manufacturing industry.

R. A. Helmers, Editor

Buying Power Index-A Key To Sales Planning

—was the kick-off subject at annual meeting, Sales & Marketing Division, SFMA.

By R. A. HELMERS, EDITOR

ELECTED PRESIDENT of the Sales and Marketing Division was John T. Roughton, right, sales manager, Thomasville Chair Co. He is being congratulated by Joseph E. Huffman, past president of the group. He is vice president for sales, Drexel Furniture Co..

YARDSTICK FOR SALES was discussed by feature speaker, Luke J. McCarthy. Hearst Corp.

Serious, shirts-sleeve business sessions, combined with informality, proved to be a successful formula for the second annual meeting of the Sales and Marketing Division of the Southern Furniture Manufacturers' Association, held at Southern Pines, N. C. November 5-7.

Featured speaker on the opening day was Luke J. McCarthy, vice president of the marketing division of the Hearst Corporation, publisher of *House Beautiful, Good Housekeeping*, and other media.

He defined the "Buying Power Index" (B.P.I.), developed by his company over a period of many years, as a potential "par" for each consumer trade area, expressed in percentage of the national market. He explained how manufacturers with regional as well as national distribution can use the index as a guide to sales planning.

"In short, we have broken down the national market as a landscape engineer would break down seven meadows into a fine golf course," Mr. McCarthy explained.

"We have laid out 601 selling holes, called Consumer Trading Areas.

"In business, as in golf, any failure to concentrate will result in a poor score. These 601 key cities, or Principal Trading Centers of the United States, account for 70% of the annual business in this country. Such concentration of retail volume is a natural law of economics. It is the basis of modern marketing," he said.

In illustrating how B.P.I. serves as a qualitative guide, he cited the state of Arizona, population 943,221, has a Buying Power Index of .4741% of the national market. Whereas, the Westchester cities, population 684,-384, have a B.P.I. of .5500% of the national market. Here consists an area with a quarter million less population that has a Buying Power Index about 20% higher.

In conclusion, Mr. McCarthy forcast for the furniture industry, "a new and prosperous outlook seems to be in the offing."

The final business session on Saturday was devoted to group discussions, including "off-the-cuff" remarks.

Following the report of the nominating committee chairman William E. Stevens, the following were elected: President—John T. Roughton, sales manager of Thomasville Chair Co., Thomasville, N. C.; First Vice President—Richard M. Simmons, Jr., vice president of American Furniture Co., Martinsville, Va.; and Second Vice President — John Hyman, sales coordinator of Founders Furniture Co., Pleasant Garden, N. C.

The next meeting of the Sales and Marketing Division will be held March 2-3, 1960 at Hotel Robert E. Lee, Winston-Salem, N. C.

METAL EDGE MOULDINGS
with TEXTURED FINISHES

Glitter Pattern

• Epoxie coatings on aluminum extruded shapes now make two tone color combinations available at costs almost comparable to single color anodized shapes. These new finishes allow for new and different styling.

Some suggested combinations:

Gold or Silver Glitter on White Background.

Gold or Silver Glitter on Black Background.

Black Spatter on White or Gold Background.

White Spatter on Black or Gold Background.

In Chrome & Brass too!

Write today for samples and prices.

NEW YORK METAL MOULDING CO.
19-22 45th STREET, ASTORIA, L.I., NEW YORK

FURNITURE Digest for Management

For more complete information on any of the Bulletins below, just circle the Bulletin Numbers on the READER SERVICE CARD which you will find elsewhere in this issue. A copy of the source material will be sent to you promptly.

Management Notes

NATIONAL WOOD PROMOTION PROGRAM is defined in a booklet "Here's How You and the NWPP Make a Powerful Sales Team for Wood Products," issued by the *National Lumber Manufacturers Association*. The booklet provides details on the national wood promotion program, designed to educate, influence, promote and sell prospective customers on the many qualities and advantages of using wood. *Bulletin D-104*

QUESTIONS ABOUT CABINET WOODS are answered in a new 24-page booklet, "10 Most Frequently Asked Questions About Fine Cabinet Woods," issued by the *Fine Hardwoods Association*. The booklet, designed to serve as an information guide, answers these questions in detail and features photographs and drawings. Manufacturers, designers and other executives may receive a copy by circling *Bulletin D-105*.

130,000 FAMILIES WILL BUY FURNITURE. According to a report of *The Philadelphia Inquirer*, a study of buying expectations revealed that approximately 130,000 families in Delaware Valley plan to purchase furniture within six months. Based on interviews by *Sindlinger & Co., Inc.*, business analysts, the study also states that 59,000 of these families plan to acquire living room furniture; 38,000 bedroom furniture; 27,000 dining room furniture and 24,000 kitchen furniture. *Bulletin D-106*

LOW-COST SALES AID, in the form of a 3-D mailing piece is being offered by *Realist, Inc.* The promotion tool, called the Viewmailer, includes a 3-D stereo slide, a set of polished plastic lenses and two-color printing of a sales message on four separate panels. It mails flat in an envelope and when opened pops into position to show the product in life-like color and stereo depth. The firm duplicates the customer's original transparency, handles printing and complete assembly and ships the units complete with matching envelopes in bulk lots. *Bulletin D-107*

REQUIREMENT OF FREIGHT CLASSIFICATION for furniture packaging materials is met by Tufflex Furniture-Pak, by stamping the manufacturer's name and compliance certificate on the material. The label certifies that the cushioning complies with railway freight requirements under Consolidated Freight Classification No. 22 and the Uniform Freight Classification No. 4. It is said to assure shippers of furniture or case goods that when using Tufflex Furniture-Pak, manufactured by *Wood Conversion Co.*, they will not be subject to the penalty of 20 to 50 percent which may be levied against products not identified with required imprint. *Bulletin D-108*

1958 SALES OF HOUSEHOLD FURNITURE, in furniture and department stores totaled $1,735,564,000., figured at wholesale, according to the 1959 edition of the Sales Planning Guide issued by the *National Association of Furniture Manufacturers*. The figure is an increase over 1957 and according to *John Snow*, executive vice president of NAFM, the increase for department stores can be accounted for by a revision in government statistics on department store sales which reclassified stores not previously in the department store category. The guide also shows that the top 10 household furniture selling states were, in order, California, New York, Pennsylvania, Illinois, Ohio, Texas, Michigan, New Jersey, Florida and Massachusetts and accounted for 58.4 per cent of total distribution. *Bulletin D-109*

LEG QUALITY RISING. In keeping with the theme set by the National Association of Bedding Manufacturers to manufacture quality products, the *Victor Wood Products Co.* is offering the trade "high quality, beautiful legs for box springs and mattresses." According to *Victor S. Ableson*, president "commencing on January 1, 1960, no more cheap American made box springs legs will be made or sold by our company. They will be more expensive than legs that you have been purchasing, but they will not be a set of legs that the consumer considers inferior to the bed that he is buying."

THE MAHOGANY ASSOCIATION elected *George T. Kinley*, Williams L. Marshall Ltd., as president during their recent annual meeting. *Charles W. Robinson*, Robinson Lumber Co., was elected vice president and *James K. Henderson*, The Freiberg Mahogany Co., was elected treasurer. Re-elected were *George Lamb*, secretary and *Teel Williams*, executive director.

NABM ELECTS OFFICERS. During the 44th annual convention of the *National Association of Bedding Manufacturers* held in Chicago, November 15-18, the following officers were elected: *John C. Sevcik*, Burton-Dixie Corp., president; *Marc Hoffman*, California Eclipse Products, Inc., vice president; and *William Friedlander*, Inland Bed Co., treasurer. *J. Paul Fanning* was re-appointed as secretary-general manager.

NEW NABM OFFICERS, left to right, Marc Hoffman, vice president; John Sevcik, president and J. Paul Fanning, secretary-general manager.

SUMMER & CASUAL FURNITURE MFRS. ASSN. re-elected all officers during their first annual meeting as a division of NAFM. Officers are *W. W. McTyeire, Jr.*, Birmingham Ornamental Iron Co., president; *Victor Reiter*, Lawnlite Co., first vice president; *John Hancock*, John Hancock Co., second vice president; *E. Elliott Brennan*, John B. Salterini Co., secretary and *Alfred Cohen*, Macon Umbrella Corp., treasurer. *Paul Buchanan*, Troy Sunshade Co. was named a director.

FURNITURE MFRS. ASSN. OF CALIFORNIA re-elected *Richard M. Sax*, Fashion Furniture Mfg. Co., Inc. as president. *James M. Rifkin*, Cal-Mode Contemporary Furniture Mfg. Co. was named vice president and *Ben Krinitt*, Filbar Furniture of California was named treasurer. *Sylvan Mack* was appointed executive secretary succeeding *Eddy S. Feldman* who recently resigned.

Supplier Service & Personnel Changes

PELRON CORPORATION, Lyons, Ill. announced the purchase of *The Airthane Corporation*, formerly a division of *Hadley Bros.-Uhl Co. P. E. Pelletier*, president of Pelron stated that Airthane has been incorporated as a division of Pelron for the production of flexible polyurethane foams.

F. BURKART MFG. CO., St. Louis, Mo., a division of *Textron, Inc.* announced that its polyurethane foam, "Burkart Foam" is now being sold directly to furniture manufacturers. *Robert B. Morrow*, president, stated all Burkart products can be cut and fabricated to individual requirements, eliminating need for manufacturers to buy in bulk and do their own trimming. He also said the firm's representatives are equipped to design pads to suit every possible application from numerous varieties and combinations of Burkart products.

RINSHED-MASON CO., Detroit, Mich., manufacturer of industrial finishes and chemical coatings, appointed *Maurice Hill, Jr.* assistant industrial sales manager. Mr. Hill was formerly with *Wolverine Finishes Corp.*, Morganton, N.C. which was purchased by Rinshed-Mason last January.

THE BASSICK CO., div. of *Stewart-Warner Corp.*, appointed *Ralph D. Mount* general sales manager responsible for sales of furniture and industrial casters and office chair controls.

PIONEER PLASTICS DISTRIBUTING CORP. constructed a new warehouse at 2483 Pratt Blvd., Elk Grove Village to serve Chicago and outlying areas. The 25,000 sq. ft. warehouse will also contain the firm's offices.

KEYSTON BROS., manufacturers and distributors of upholstery fabrics, opened a new branch office at 1221 S Street, Sacramento, Calif. *David Entrican* was named general manager.

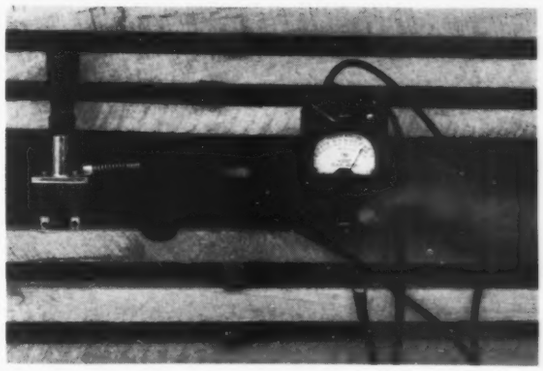
ARMOUR ALLIANCE INDUSTRIES, Coated Abrasives Div., Alliance, Ohio, appointed *Dawson T. Curtis*, formerly with *F. Noble Machinery Co.* as technical service engineer specializing in the woodworking-furniture industries.

FIRESTONE RUBBER & LATEX PRODUCTS CO. appointed *Pillow Manufacturing Co.*, St. Louis, Mo. as midwest distributor for Firestone foam rubber serving Missouri, Kansas, Iowa and Nebraska.

E. I. Du PONT DE NEMOURS & CO., Textile Fibers Dept., appointed *T. Nash Broaddus* manager of home furnishings

Continued on page 36

GREEN-ONE WEEK AGO!
TODAY...25%MC



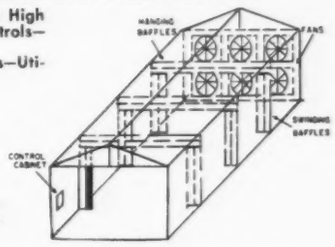
FAN-AIR DRY...
YOUR GREEN HARDWOODS!

ELIMINATE—TWIST
• WARP • STAIN
• END CHECKING

The Fan Air System insures flat, straight, brighter lumber — a quicker inventory turnover and will save from 60 to 90 days' drying.

INSTALL A *FAN-AIR SYSTEM* WITH THESE EXCLUSIVE FEATURES:

- Automatic Control Cabinet with High and Low Limit Humidity Controls—Prewired at Factory
- Adaptable to Existing Structures—Utilizing Unique Air-Foil Baffles
- Uniform Air Velocities—Special Heavy Duty Fans
- Minimum Horsepower/CFM-Low Operating Cost
- Proven Performance—Actual Installation Operating on Production Basis
- Competent Engineering Service—Available for Special Applications

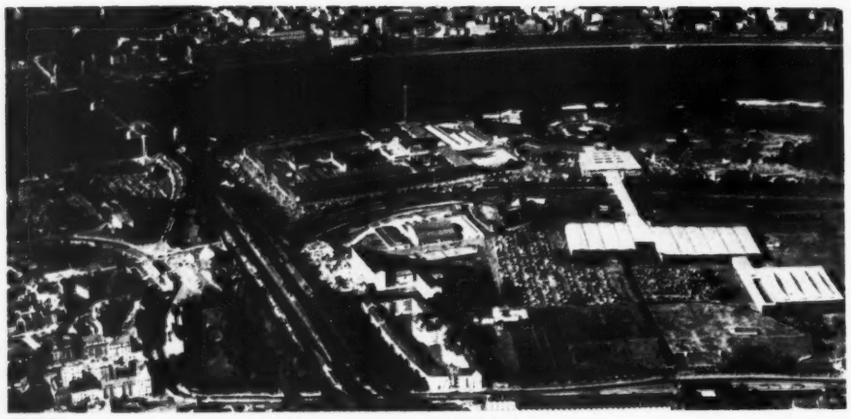


The principle of the Fan Air System is clearly indicated in the photo to the left.

The air is passed over, under and completely around the stacked lumber by virtue of the installed fans and special baffles.

WRITE TODAY FOR ATTRACTIVE BROCHURE "FAN AIR LUMBER DRYING SYSTEMS"

FAN-AIR SYSTEMS, INC.
"Designers and Engineers of Fan-Air Drying Lumber Systems, Exclusively"
P. O. BOX 2303 • DE SOTO STATION • MEMPHIS 2, TENN.
Carlton Smith, Pres., Abe Lemsky, Vice Pres., T. J. O'Brien, Eng.-Sec.-Treas.



AERIAL VIEW OF COLOGNE where the bi-annual furniture fair will be held. One million square feet of floor space is devoted to the event.

Cologne Furniture Fair Slated

Europe's largest and most important trade fair of its kind, The Cologne International Furniture Fair, devoted exclusively to furniture, will be held in Cologne, Germany from February 11 to 15, 1960.

The fair grounds cover an exhibition area of 1,000,000 sq. ft. and are located on the east bank of the Rhine River near the center of the city. Ten modern halls will house the exhibits of furniture manufactured in European and overseas countries.

In 1958 the fair featured 680 German furniture manufacturers plus 198 from other countries. Admittance is restricted to registered furniture buyers and the general public is not admitted. Between 50,000 and 60,000 buyers from all parts of the world will be in attendance.

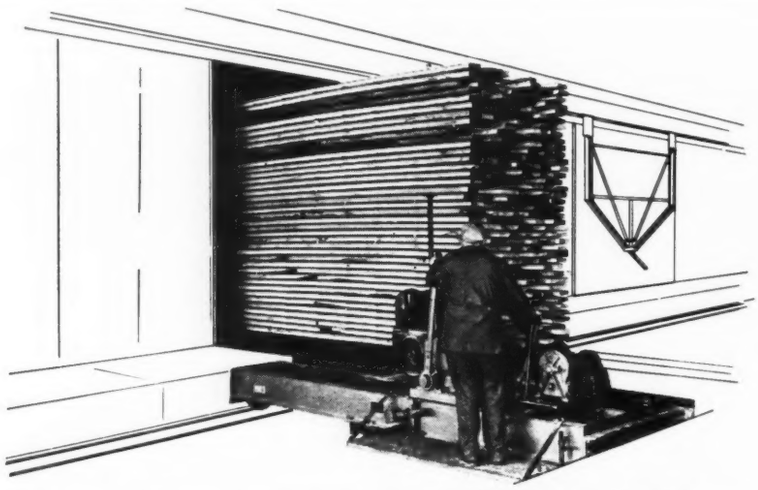
The fair which is held in Cologne every two years offers a complete survey of furniture production in Europe and is said to be the most significant exhibition of its kind in the world. Widely acclaimed as an international forum, participation in the fair has proved to be an important asset to buyers and sellers wishing to make international business transactions in furniture.

Buyers not adept in foreign languages will be able to take advantage of a free service offered by a staff of 30 interpreters. Other conveniences for exhibitors and buyers include meeting halls, reception and information center, German and foreign trade journals and pressroom.

The last fair in Cologne in 1958 featured exhibits from Austria, Belgium, China, Czechoslovakia, Denmark, Finland, France, Great Britain, Italy, Netherlands, Norway, Roumania, Spain, Sweden, Switzerland and Yugoslavia. Visitors to the Fair represented 50 countries throughout the world.

Additional information and passes to the fair are being handled by representatives throughout the world. ■

DANISH FURNITURE, as well as designs from other European countries will be shown at the fair. Above group was shown in 1958.



One Man moves Loads of Lumber with Leitelt Transfer Car

The Leitelt Power Transfer Car, operated by one man, can move load after load of lumber at lowest operating cost to you. It will move your kiln loads of lumber dependably and efficiently in and out of storage tracks . . . charge and discharge your dry-kilns and deliver loads to your first line machine. Extra manpower is eliminated. Leitelt will gladly answer inquiries on how a Leitelt Transfer Car can serve your particular needs.

LEITELT IRON WORKS

Since 1862

Erie at Mill Ave.
GRAND RAPIDS 2, MICHIGAN

Kroehler's Engineering Triumph—

Cultured Wood

What it is—how it is made

"Cultured Wood," a new moisture-resistant material for furniture making, is now in volume production. Although today it is being manufactured exclusively by Kroehler Manufacturing Co. at its recently-dedicated $5.5 million plant in Meridian, Miss.—the new board product may well influence future design and construction of case goods.

The new material is, essentially, a refinement of natural wood. It is similar to hardboard, but lower in density, making it practical to produce stock in thicknesses to 1½ inches. It is all wood—small pieces of raw lumber are reduced to chips by high speed hammer mills. A series of steaming and soaking completely separates the fibers which are then dried.

No adhesives are added to the formula . . . only catalysts which help release the wood's natural binding agents, lignin and furfural. Certain bulking oils are added before mat forming.

The formula is a discovery in chemical research by R. W. Emerson—vice president of Emerite Corporation. Kroehler is licensed to manufacture the product under Emerite patents—exclusively for only a limited time.

Continued next page

BY R. A. HELMERS, EDITOR

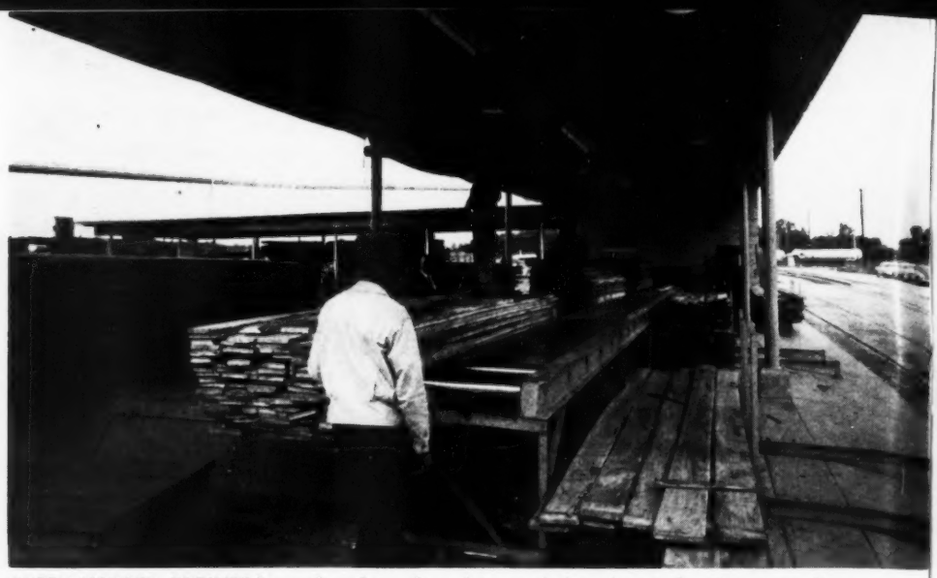
All plant photographs by the author except where indicated.

D. L. KROEHLER
President

KENNETH KROEHLER
Executive Vice President

VISITORS INSPECT Kroehler's new $5.5 million plant at its formal opening recently.

Cultured Wood



GREEN LUMBER ARRIVES by rail and truck and is graded and sorted. Conveyor then moves boards to double surfacer inside building. Inventory of 6 million board feet is maintained.

It Starts With A Dimension Mill of Tremendous Capacity

It is apparent that considerable engineering work and physical resources were required to get the product in commercial production. Torbin Yates, Kroehler's manager of development engineering, played a key role in the development of plant and processes.

Because manufacture of Cultured Wood depends on wood waste for its raw material, the plant was designed on the closed circuit principle. The four-acre, 600-foot-long building actually houses three plants in one.

A frame stock dimension mill was designed to fulfill Kroehler's requirements for 2,344 pieces of upholstered furniture daily. A rough mill and machining department was engineered to supply drawer sides and backs for 8,109 pieces of bedroom and dining room furniture each day. The Cultured Wood plant was designed to utilize the waste from these two operations.

The two dimension mills, operating eight hours a day, produce about 500 tons of hardwood waste per week. The Cultured Wood plant, operating three shifts, around the clock (as it must) is fed by this tonnage.

Every phase of the plant and its grounds reflects precise planning and good housekeeping.

All lumber is graded, sorted, double surfaced, dipped and end trimmed prior to stacking. Species used are gum, oak, elm and beech. All stock is kiln dried.

Upholstery frame lumber is again double surfaced to final thickness as it enters the rough mill. Each board is ripped before cross-cutting; is fed by belt conveyor to rip saws. A "kicker switch," developed by Kroehler, flips the board into position for easy handling by the operator. Edgings are conveyed to a slasher saw which cuts the material into short lengths. All waste material goes to the hammer mill below the factory floor.

After being cut to length, upholstery frame stock goes through automatic drop sorters which sort for width, length and thickness. At this final station it is bundled and steel strapped for shipment to Kroehler factories.

The oak drawer stock mill, a separate operation, processes material thick enough to make two units at a time. Machining and sanding of these parts is automated . . . machines are connected by power conveyors.

What are the factors that make Cultured Wood possible? The development of the formula was explained by R. W. Emerson as follows:

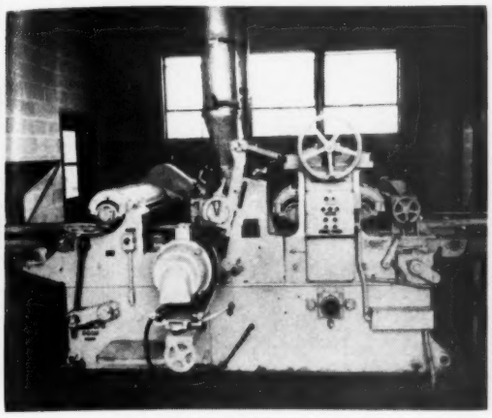
"The thesis of our program has been to find a means of changing the physical characteristics of wood just

Continued on page 15

STOCK SORTING MACHINE, developed by Kroehler, collects stock by lengths in bins, below. Workman assembles and steel straps for shipment to Kroehler plants throughout the country.

A MILLION FEET A DAY—Sixteen Irvington No. 19 cut-off saws produce stock to specified lengths and deliver it to conveyor belt in foreground. Waste conveyor, closest to saws, carries shorts to hammer mill for use in Cultured Wood.

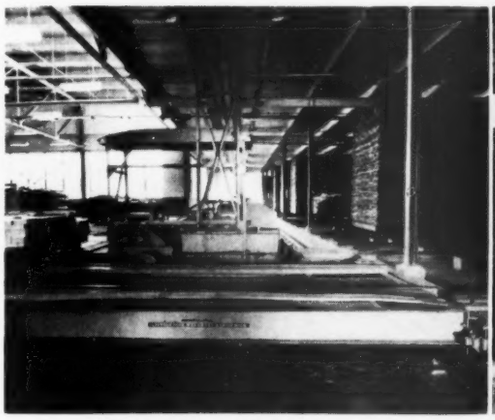
For further data on equipment, see "Furniture Engineering" section, this issue.



CONVEYOR-FED S. A. Woods No. 464-M double surfacer planes each board to even thickness.

LUMBER IS STACKED by a Lawson stacker after it has been end-trimmed and germicidal dipped.

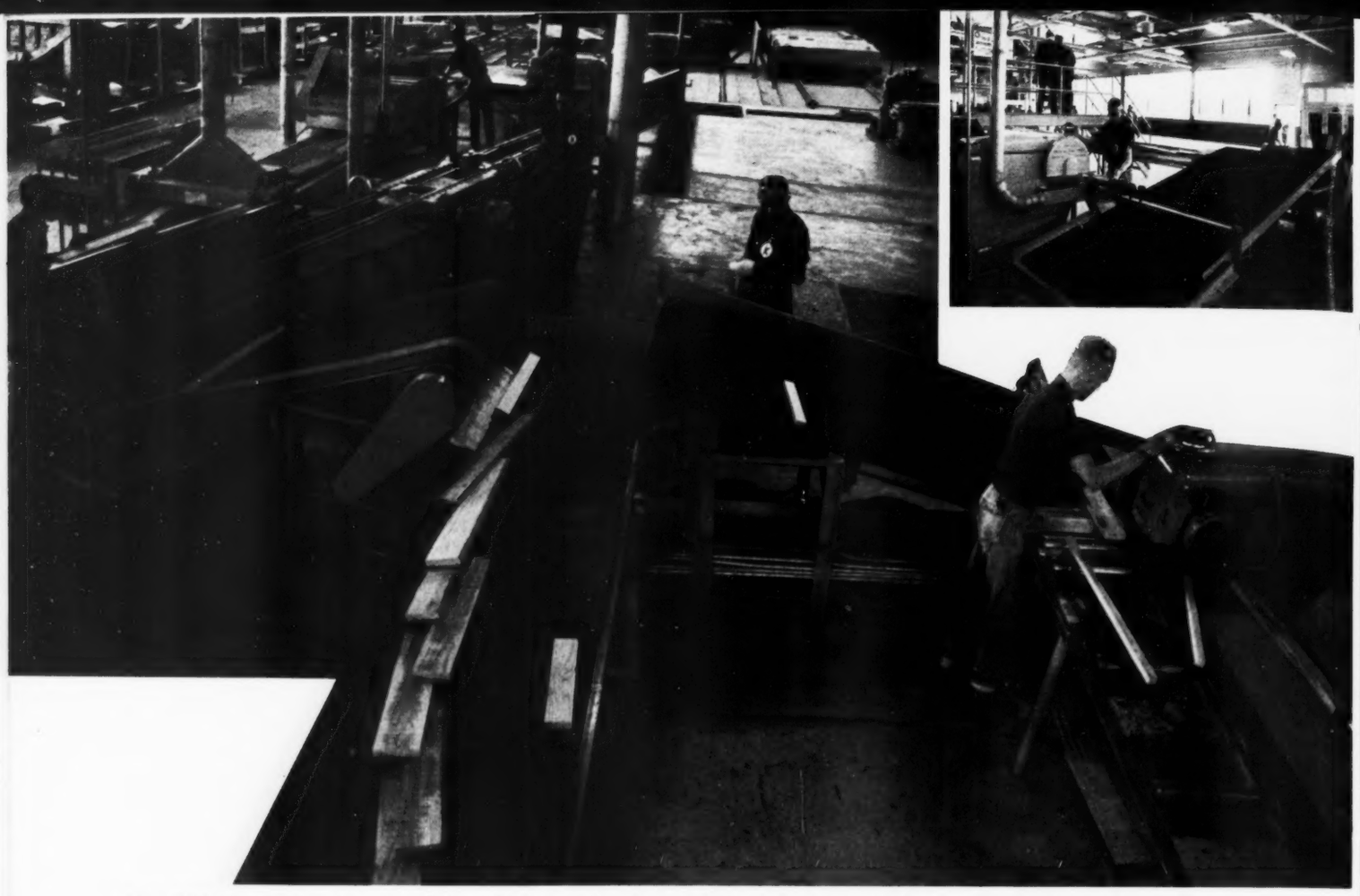
WOOD IS SEASONED to proper moisture content in these Moore dry kilns. Photo courtesy Kroehler.



FROM DRY STORAGE lumber is moved to factory with Leitelt power transfer car.

DRY SURFACING by another S. A. Woods surfacer precedes ripping, cross-cutting.

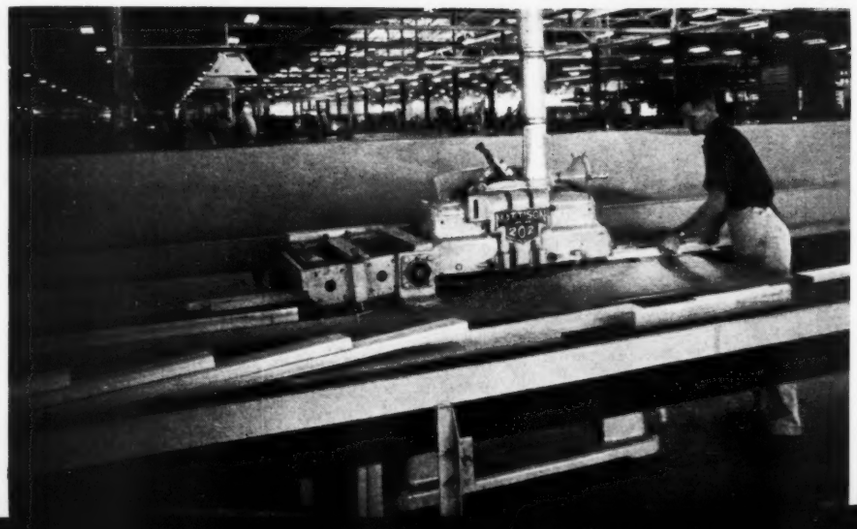
RIPPING OPERATIONS are preformed by nine Mattison No. 202 ripsaws.



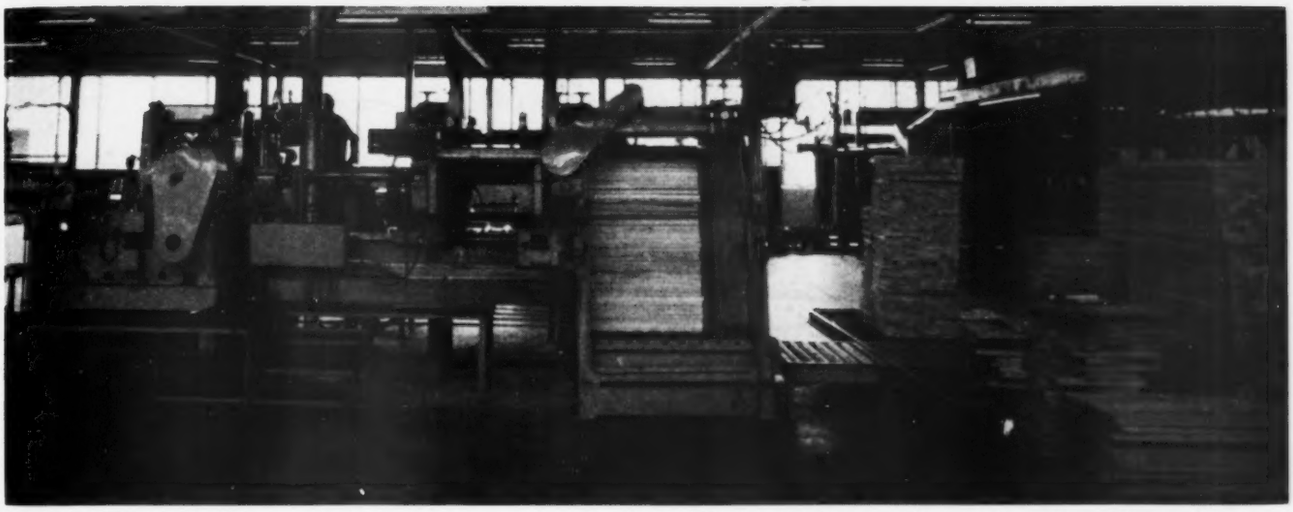
OAK DRAWER STOCK is processed through this rough mill. For description of material flow, see explanation below, left.

Cultured Wood

DRAWER PARTS LINE starts with two Porter cut-off saws, equipped with cross-feed conveyors. Stock passes through a Porter No. 715 facing planer and a Flo-Planer single surfacer; is jointed on a Diehl machine equipped with Porter conveyors and turnovers. Belt carries stock to three Mattison No. 202 rip saws (see pictures at right). These machines are equipped with sorting offbearing conveyors which carry defective stock to feed-back conveyor. The latter returns stock to a Diehl cut-off saw (see inset at top right of page) for further working. Finished blanks move to an automatic stock sorter. From here material goes to gluing department or to machine line shown on opposite page.

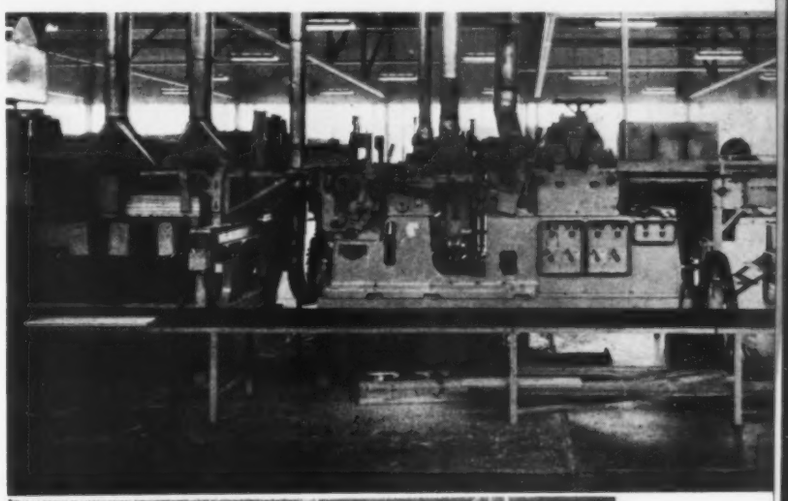


Automation In Drawer Side Manufacture



DRAWER STOCK MOVES, from right to left, from automatic scissors lift, through Mereen-Johnson No. 600 equalizer and Mereen-Johnson No. 441-A gang rip saw, all connected by conveyor.

TWO AT A TIME—Drawer stock is machined by Mattison No. 229 moulder, automatically trimmed to correct lengths by a Mereen-Johnson No. 435-H multiple cut-off saw. A Mershon band resaw cuts into two units. Then follows surfacing with a Flo-Planer and final sanding by a Nash belt sander.



For further data on equipment, see "Furniture Engineering" section.

Continued from page 13

enough so that the wood can resist its age-old foe, namely climatic changes. Or, to put it another way, we create a stability in the wood so that it does not change its size or shape because of the ravages of humidity variations during the seasons of the year. We call this stabilization, and our research has been to so treat the wood that it becomes permanently stable.

"It soon became apparent that our research demanded that the wood itself be broken down into small increments which would be particle sizes such as wood chips, flake or fiber, and thus, in this form, can be more readily treated and then re-assembled into the most practical and usable form.

"Having gotten wood into a form where it can be treated, then we move into the world of chemistry where we have been successful in developing a chemical catalyst that provides for rearranging the molecules of the wood at the point of union when the particles are being readhered one to the other. This molecular change is believed to be a very large contributor to the stabilization that Emerite chemistry provides.

"Further treating the wood with humidity barriers, known to the high density or hardboard world as tempering, is also utilized. Some rare woods are given this humidity barrier through their natural oil, such as Ebony wood. By Emerite chemistry we are able to treat the wood particles with these stabilizing oils, called tempering oil, prior to reforming into boards or molded shapes and thus build throughout the whole aggregate this added stabilizing feature called tempering.

"In the last analysis, the reducing of the wood down to small particles and thoroughly drying them along with

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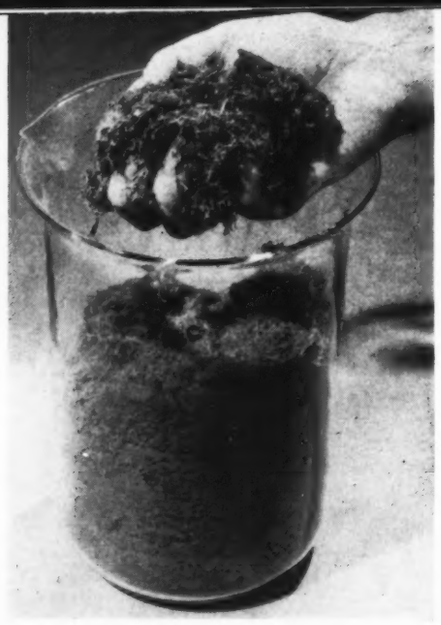
GLUING DEPARTMENT is equipped with Raybond electronic gluer, hopper feed and spreader and a Palmer-Bee slat conveyor.



WOOD FIBERS, made of hardwood waste, are formed into moisture-resistant panels, called "Cultured Wood."

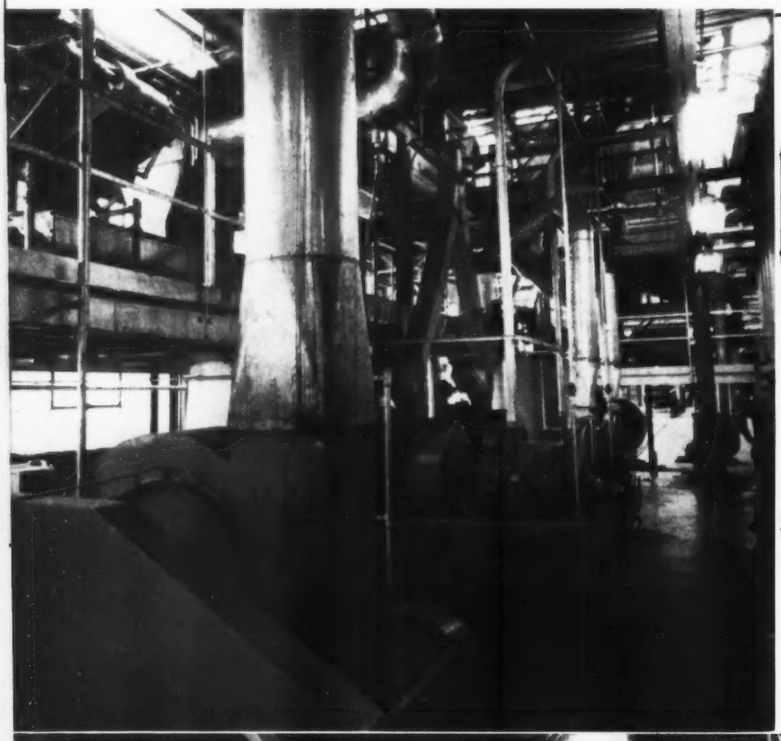
Cultured Wood –

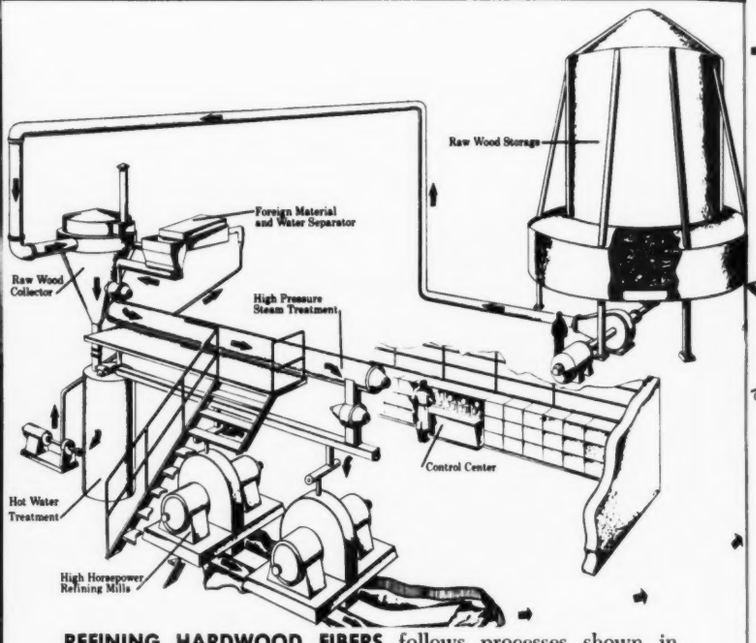
Continued from page 15

the hot press treatment, and the final oven tempering treatment, all constitutes application of heat to the wood, which in and of itself, has long been known to be a stabilizing contribution to the wood in its final form. Adding to this continuous treatment, the reforming of the molecules, and then finally the addition of moisture barriers through the tempering bulking oils brings about a process that provides a new level of stabilization for superior wood products, which in the last analysis, has been our thesis," Mr. Emerson stated.

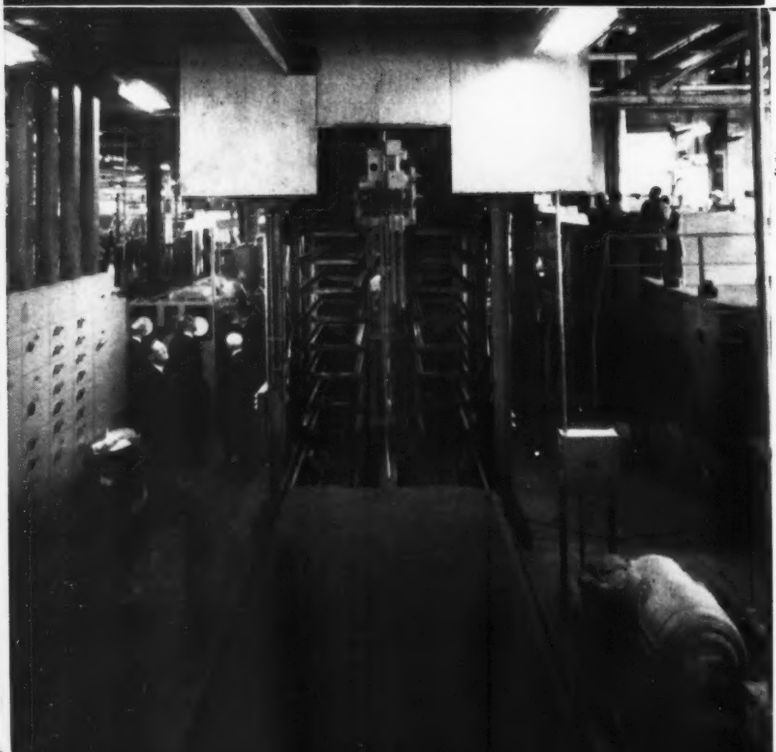
Torbin Yates, when interviewed, gave a simplified explanation of what happens in the chemical process of reforming the wood fibers.

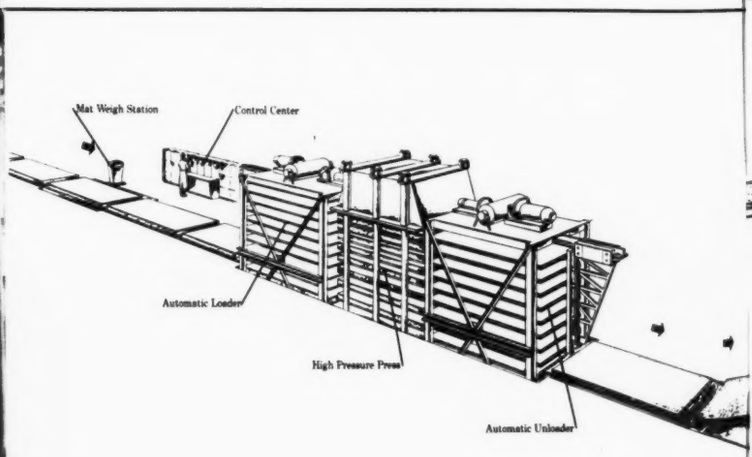
"Until the development of Cultured Wood, we had two





REFINING HARDWOOD FIBERS follows processes shown in sketch. About 80 tons of wood waste are consumed daily. Left is attrition mill supplied by The Bauer Bros. Co.





PANELS ARE MADE in a multiple opening hydraulic press built by Washington Iron Works, exerting 2,004 tons pressure at 400° F. Photo at left shows mat entering automatic press loader.

A New Furniture Material Is Born

types of fibrous cellulose products," he said: "Insulation board—under 30 pounds per cubic foot density; and hardboard—from 60 to 90 pounds per cubic foot. This left a void between the 30 and 60 pound densities."

He said that Cultured Wood successfully fills that void and because of its medium density, can be made thick enough for core stock. Mr. Yates explained that no adhesives of any kind are used in the formula. Certain non-adhesive chemicals . . . acid catalysts . . . cause the lignin and furfural to flow at 400° F. pressing temperature. Amazingly, the newly formed wood remains stable and resistant to moisture.

Mr. Yates explained the stabilizing theory in this way: one may take another cellulose fiber—cotton—and treat it with an acid catalyst in the presence of a resin. This creates a molecular state that prevents shrinkage due to moisture (and swelling, too). That roughly describes the "Sanforized" treatment given to textiles. The stabilization theory of Cultured Wood is similar in principle.

This and other known factors, combined with "things that happen but we do not know why," makes Cultured Wood a reality.

As to physical characteristics and working properties of Cultured Wood full details have not been released. As stated before, its density range is somewhere between 30 and 60 pounds per cubic foot—comparable to rock maple or walnut. Strength and screw holding properties are similar to yellow poplar and it glues about the same

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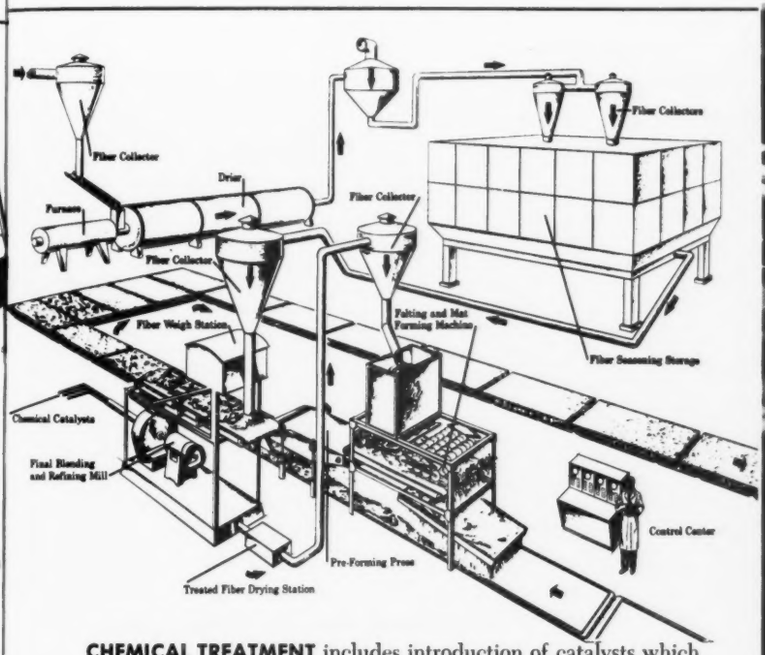
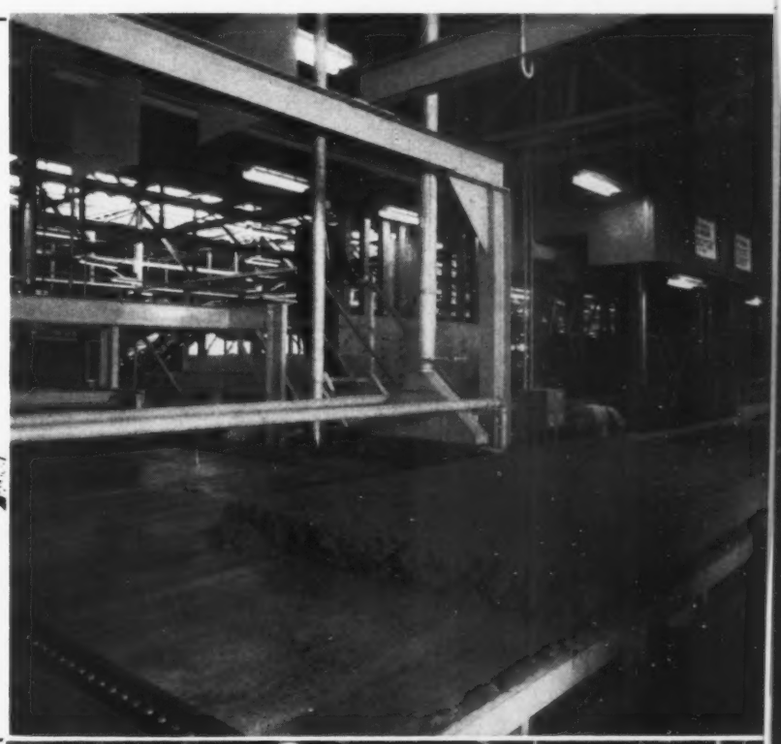
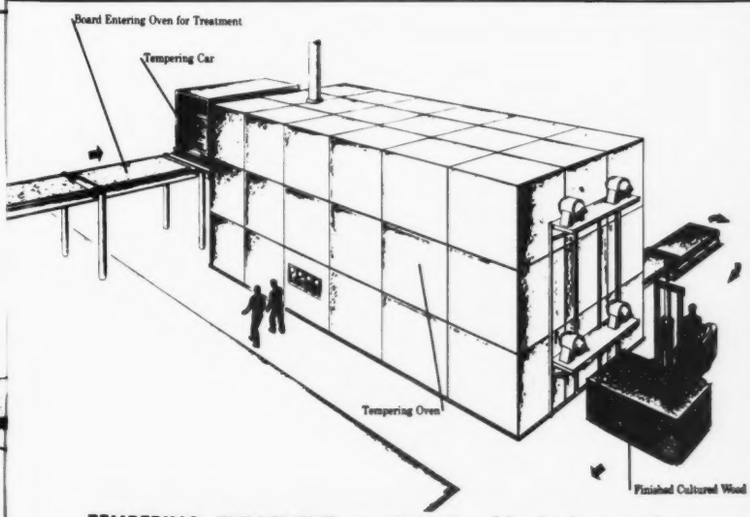


CHEMICAL TREATMENT includes introduction of catalysts which release wood's natural resins, lignin and furfural. Photo at right shows formed mat before pressing.





TEMPERING TREATMENT at 300° F. adds final strength to board. Moisture-resistant Cultured Wood is then shipped by open flat car. Photo shows transfer equipment moving material from press to oven.

Cultured Wood

Continued from preceding page

as natural woods of equal density. It machines about the same as wood of equal density but permits working to exceptionally close tolerances. Kroehler uses carbide-tipped cutting tools, supplied by Kennametal, Inc. and Victory Carbide Saw & Tool Co., to assure long runs between sharpenings.

Before deciding to build the Cultured Wood plant, Kroehler had the Forest Products Laboratory, division of the U. S. Department of Agriculture, run exhaustive tests on the Emerite formula over a three year period. Actual pieces of furniture were subjected to exaggerated conditions of humidity. Results of these tests were sufficient to cause Kroehler to build a $5.5 million plant.

In marketing case goods utilizing Cultured Wood, Kroehler claims to eliminate sticking drawers, swollen cabinet doors and checked and warped surfaces. The material feels, smells and sounds like wood. One current collection with Cultured Wood construction is the "New Idea" group (see front cover).

How may the new material affect future furniture design? In addition to its resistance to moisture, the designer may find new forms and shapes possible, because there is no grain direction. Because it can withstand high temperatures, Cultured Wood may be coated with hot, high solids finishing materials now on the market or to be developed. Other uses than furniture construction might be architectural panels, resistant to flame and moisture; patterns and jigs; and other indoor and outdoor consumer products.

Of no little importance is the contribution Cultured Wood makes toward conservation of our natural resources; virtually all of the lumber is used. The process could well be expanded to utilize small limbs, slab and other waste left in the woods or at the lumber mill.

The Miller-Hofft Engineering Co. of Richmond, Va.; Johnson and Johnson Engineering Co. of Chicago, Ill.; and The Bauer Brothers Co. of Springfield, Ohio were the organizations primarily responsible for the design, construction and installation of the Cultured Wood machinery and equipment.

The achievement might well be summed up in the words of M. E. Ginaven, vice president of The Bauer Brothers Co.:

"The Kroehler Manufacturing Co. is to be congratulated for its far sighted approach to the problem of full wood utilization in its manufacturing program. Many noteworthy advances have been made in furniture construction through the use of core stock and manufactured boards, but Cultured Wood is a product that didn't just happen. It is a well engineered product resulting from technical study plus laboratory experiments and considerable monetary courage." ■

BRIEF FACTS ABOUT KROEHLER'S CULTURED WOOD PLANT:

- Structure covers four acres under one roof; site contains 30 acres with outdoor seasoning capacity for six million board feet of lumber; six miles of railroad track.
- Cultured Wood is produced in hardboard for drawer bottoms, mirror backs, dresser and chest backs and dust panels in from ⅛-inch thicknesses; produced in medium density board up to 1½ inches thick for tops, sides and drawer fronts. Panels come from press 5′ by 10′.
- Plant employs 250, including 15 technicians who operate Cultured Wood plant in three shifts, 24 hours a day.

CONGRATULATIONS

to the Kroehler Mfg. Co.,

for their remarkable achievement

"CULTURED WOOD"

made under the EMERITE PROCESS PATENTS

EMERITE CORPORATION

Executive Offices - P. O. Box 1043, Jackson, Miss.

Exploratory Development - 339 South Farish Street, Jackson, Mississippi

FURNITURE Designer of the Month

SHELDON M. RUTTER, A.S.I.D., winner of the Apollo award for most outstanding design.

"BAL HARBOUR," designed by Sheldon Rutter for AFCO Aluminum Furniture Co., features frames of square tubular aluminum and extruded shapes. Seams and joints are welded to form unified structure.

Rutter Captures Design Award

1960 Apollo awards for indoor-furniture offerings were presented during the first annual dinner meeting of the Summer & Casual Furniture Manufacturers Association, division of the National Association of Furniture Manufacturers.

The Apollo award for best design was received by AFCO Aluminum Furniture Co. of Miami and the award for the most outstanding engineering achievement went to Macon Umbrella Corp. of Brooklyn.

The awards, 18-inch high castings of the sun god figure, were presented by the donor, Maurice Pinover, publisher of *Summer and Casual Furniture* magazine.

AFCO received its award for the Bal Harbour group exclusively for interiors which was designed by Sheldon M. Rutter, A.S.I.D. The group is an aluminum collection with frames of square tubular aluminum and extruded shapes, with gracefully designed picket backs on seating pieces to make them free-standing.

Macon Umbrella was presented with its award for a new folding aluminum-top umbrella. The addition of aluminum in sections to the outside of the new sun umbrella make it practically impervious to any weather, provides more decorative effect and is very practical inasmuch as the umbrella opens and closes easily because of the manner in which the aluminum sections are applied.

Judges for the award presentation were: John Anderson, managing editor, *Interiors* magazine; Evelyn Clark, *Home Furnishings Daily* and Alfred Siesel, Harold J. Siesel Advertising agency. ■

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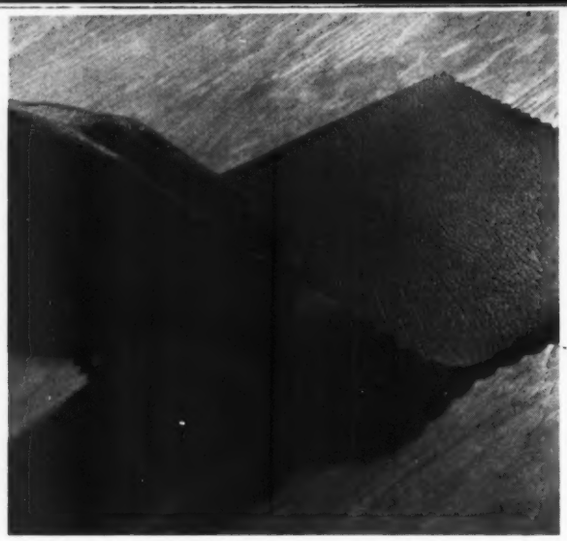


ELASTIC-BACKED "FEDERAN" vinyl upholstery material in pattern "Bomarc," styled by Raymond Loewy Associates. Product is tested by United States Testing Company; also carries Parents' Magazine seal of approval.

WHAT ARE IN VINYL

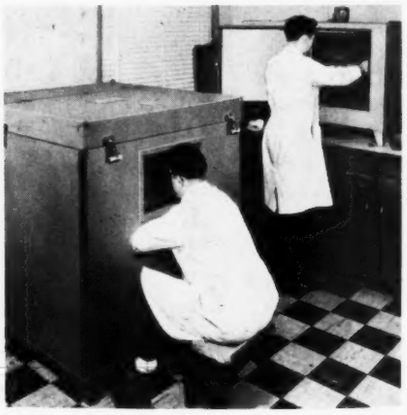
BY R. A. HELMERS, EDITOR

Product testing photos and technical data courtesy of Federal Industries, manufacturer of "Federan" vinyl fabrics.

MACHINE SUBJECTS vinyl upholstery materials to several thousand flexes. Tensile strength is also determined by a Scott Tester, not shown. Federal Industries operates its own testing laboratory, in addition to tests made by United States Testing Company.

TECHNICIAN CHECKS color density and other properties of plasticizer before acceptance for product use.

ABRASION TESTS determine durability of fabric, left; machine at right tests for "wipe-off."



VINYL IS HEATED in oven, right, then placed in refrigerator, left, where it is tested for cracking or chipping.

THE QUALITY FACTORS UPHOLSTERY FABRICS?

Sub-standard vinyls may appear to be "as good as any" at the time furniture is upholstered but fail in customer use. To find out why we went to a leading supplier whose materials are tested by an independent laboratory and asked some very pointed questions. Here are the answers:

Price is often an important consideration in selecting materials and components for furniture manufacture. But when the price factor becomes dominant, quality standards come down . . . sometimes dangerously low. A case in point is the purchase of vinyl upholstery fabrics.

Unfortunately, neither feel nor visual examination of vinyl materials can surely tell whether you are examining a top quality material . . . or one that will split, crack or otherwise fail in customer use.

Such failures result in dissatisfaction with vinyl-covered furniture, the dealer who sold it, and vinyl upholstery materials in particular.

Inferior vinyls are generally conceded to be compounded from lower-priced ingredients, or are produced with too high a percentage of inexpensive extenders.

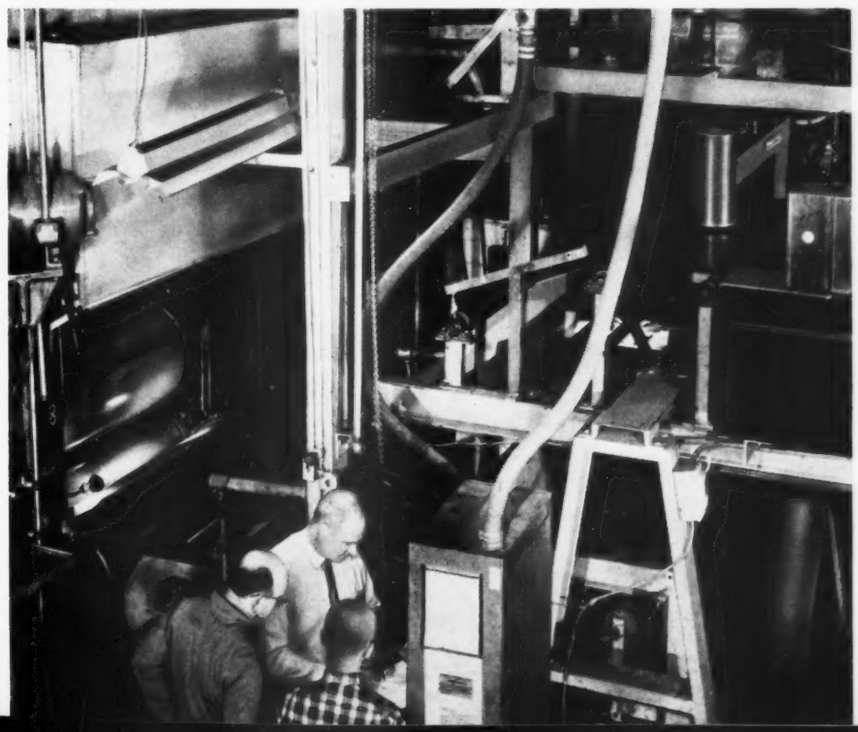
According to a spokesman for Federal Industries, Inc., a leading manufacturer of vinyl materials, one of the raw material ingredients often adulterated is the plasticizer. This material costs from 18 to 55 cents per pound (quantity price). Cheaper plasticizers are manufactured using recovered alcohols, mixed alcohols, etc., or materials manufactured from mixed raw materials such as fatty acids and reclaimed alcohols. Some are derivatives of petroleum products and other chemical reclaims.

When used in large enough propor-

Does this happen to your product?

SPLITTING AND CHIPPING are some of the common failures of sub-standard vinyl upholstery materials. Photo by author.

NUCLEONIC BETA GAUGE, hammer-shaped device, upper right, assures uniform thickness of vinyl being fused to fabric backing in this machine. Technicians in foreground are reading graph which records vinyl thickness measured by beta head.



ARTICLE ANSWERS THESE QUESTIONS ABOUT VINYL QUALITY:

- **In what ways do inferior vinyl upholstery fabrics deteriorate?**
- **What is meant by "high wipe-off" and what is the cause?**
- **What key materials or processes are frequently omitted or substituted in production of sub-standard vinyls?**
- **What raw material specifications and tests are practiced by Federal Industries?**
- **What tests of finished product are given by the vinyl upholstery manufacturer?**

Vinyl Quality

Continued from preceding page

tions to effect a cheaper compound, they are almost sure to produce a sub-standard product. Cheap plasticizers may have high acidity, dark color, high volitility and are not compatible with primary plasticizers.

Attempts have been made to blend these volitile plasticizers with good organic, more expensive plasticizers. However, to effect any substantial savings, an addition of greater than 30 percent of the low-priced ingredient must be used.

But beyond 20 percent, the compound produces effects that make the end product sub-standard or inferior vinyl, according to Federal.

What happens to the vinyl product when a highly volitile, cheap plasticizer is used in the compound?

Plasticizers of this type are said to seep out of the vinyl compound, a condition called "spuing" or "wipe-off." The spued plasticizer is actually wiped off the arm or other surface of the furniture by the sitter's clothing. This continues and finally enough plasticizer is removed until the vinyl becomes brittle and splits or cracks. Completely spued vinyl will crack with the slightest contact or jar.

Unfortunately, although spuing of sub-standard materials starts immediately after the product is manufactured, it usually remains unnoticed until the furniture has gone into use and 25 to 30 percent of the plasticizer has left the compound. This may take six months. With extremely cheap compounds this may come sooner. A sudden change in temperature may cause cracking to begin earlier. Even some poorly plasticized vinyls initially have poor impact strength when cold and may damage in transit during cold weather.

Sub-standard vinyls are almost sure to lack compatible plasticizers that are chemically balanced and well blended.

However, it must be stated that quality vinyls, well compounded and manufactured of quality materials are tough, long wearing and highly resistant to hard usage.

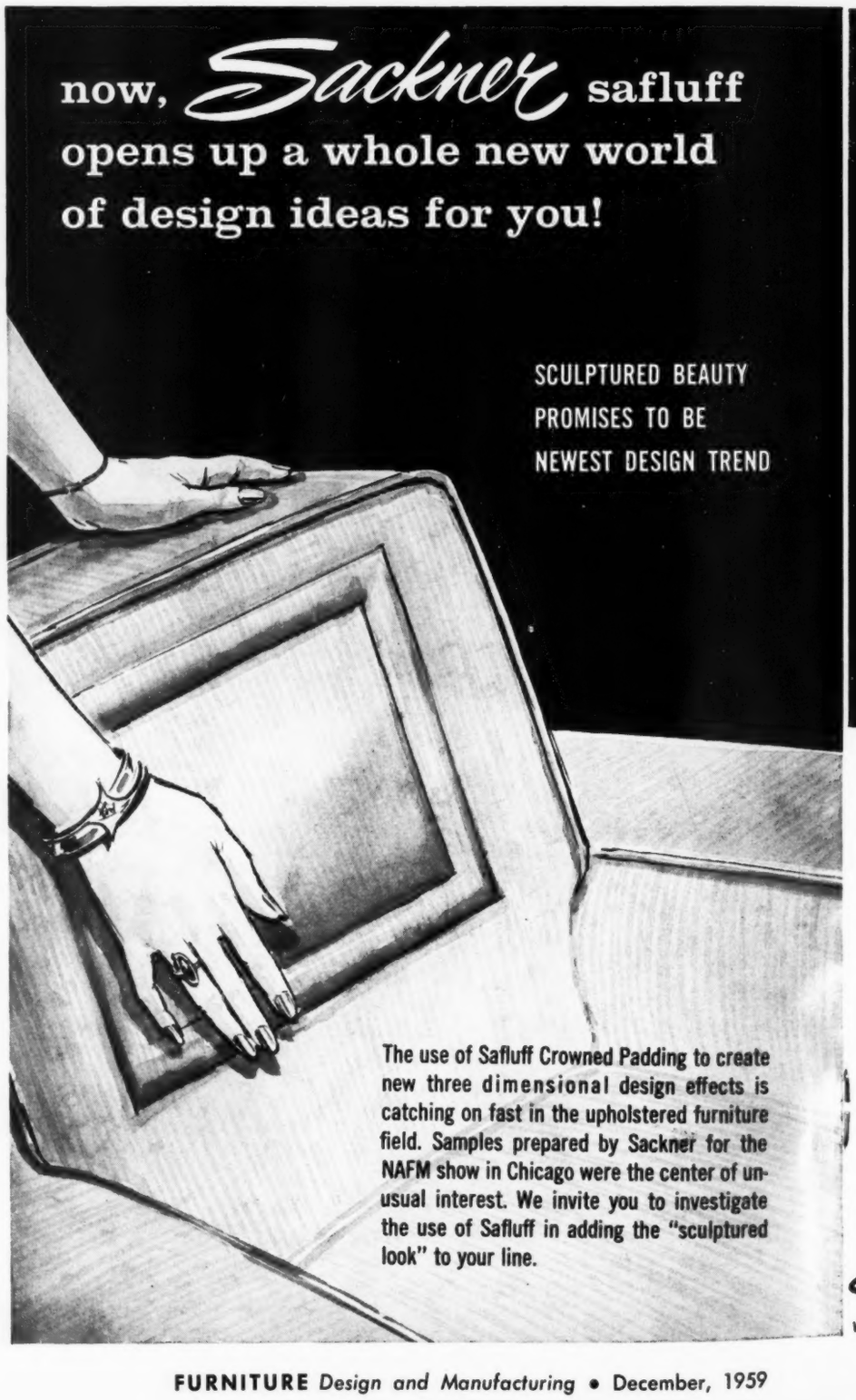
What else is missing from sub-standard vinyls?

To maintain heat and light stability in processing and in use, certain stabilizers must be incorporated into the compounds. In inferior vinyls, stabilizers may be used in insufficient quantities. Stabilizers vary greatly in price and quality and too frequently the cheaper ingredients give poor results in heat stability, light stability and sulphur staining. The latter is especially important when used with rubber cushions.

Another short-cut that often results in inferior vinyl upholstery fabrics lies in pigmentation. Cadmiums, thioindigos and phthalocyanide pigments which cost as high as six dollars a pound have a guaranteed life for ultraviolet light and heat stability. Oxide pigments may cost as little as 15 cents a pound, or even less.

To make a cheaper vinyl, quality of cloth backing may be lowered. Poor tensile strength, fatigue strength of the cloth may be reached prematurely, and stressed areas will tear. Stretching, shrinking and mildewing are other problems arising from specification of sub-standard backing cloth.

One of the important steps in production which may be omitted to


now, Sackner safluff
opens up a whole new world
of design ideas for you!
SCULPTURED BEAUTY
PROMISES TO BE
NEWEST DESIGN TREND
The use of Safluff Crowned Padding to create new three dimensional design effects is catching on fast in the upholstered furniture field. Samples prepared by Sackner for the NAFM show in Chicago were the center of unusual interest. We invite you to investigate the use of Safluff in adding the "sculptured look" to your line.

lower the price is the application of "finish coats" over plain or printed patterns. Printed patterns can rub off in use and clothing can actually be ruined because of deeper ingredients coming out of vinyl which lacks a finish coat.

By using lower cost raw materials a manufacturer of vinyls can effect considerable savings in his cost of the end product. Too often inferior properties can not be detected until the furniture goes into use.

It is understood that suppliers of quality vinyls maintain quality standards for their raw materials.

To verify this we found that Federal Industries, Inc. for one conducts its own laboratory tests of incoming raw materials before acceptance into storage tanks or areas. Resins are checked for oil-absorbing qualities, particle size, particle size distribution and hard particles.

Plasticizers are checked for specific gravity, viscosity and acid number. Stabilizers are compared with master samples for heat and light stability and sulphur staining. Pigments are checked upon receipt for strength, light and heat stability.

"As an example, our standards for plasticizers are so rigid that we only have two or three approved sources for the material," said a spokesman for Federal.

"Color is closely checked on an APHA scale and tolerances allowed are in the 10 percent range. For example, some plasticizers are acceptable to us at No. 20 on the scale, yet these same plasticizers are used by others at a range of 150. The price, of course, is much cheaper.

"It is very important that the acid number be in low range because it may cause color shifting in processing," he added.

Federal also checks alcohols used for the materials. This is checked through distillation. Materials are required to be free of free-alcohols and unformed esters. Other raw material tests include mildew proofing, water proofing, certain staining, etc.

During and after manufacture of vinyl upholstery materials the company checks for color uniformity against masters under both daylight and MacBeth lighting. Volitility of plasticizers is checked in the finished product in a circulating oven set at 220° F for 24 hours and also in activated carbon.

Stain and temperature tests include accelerated aging in circulating air ovens at 158° F for periods of one to three weeks, and checked for spuing, becoming brittle or staining. The latter is checked against direct exposure in H_2S, Sulphur Staining, which is very important for cushioning work against foam rubber. Materials are also checked in the Fade-O-Meter and Weather-O-Meter for resistance to sunlight and fading.

Each quality has specific tensile and wear strengths in which every shipment must meet a tolerance of plus or minus ten percent. For tensile strength, Federal uses the Grab Method, Scott Tester. For tear, either tongue tear or trapezoid test methods are used. Samples are conditioned in a special humidity and temperature controlled conditioning chamber. The company uses Taber Abrasion Methods or Wyzenbeek, depending on customer requirements. Bonding of fabric backing is measured in pounds on a Scott tester. *Continued on page 41*

GET A
CUSTOM STYLED LOOK
WITH PRODUCTION
LINE EASE
Safluff Crowned Padding is inserted between backing and fabric, and snugly against first seam.
Backing cloth is laid down and machine sewed to upholstery fabric along one edge.
Sewing operation is completed, and "sculptured" fabric is fitted onto furniture.

SAFLUFF CROWNED PADDING FEATURES ARE MADE TO ORDER FOR THIS EXCITING NEW APPLICATION

UNIFORM — The straight edges, clean corners and uniform shape and dimensions, so essential to the success of this new sculptured styling, are outstanding features of Safluff Crowned Padding.

SOFT — The specially resilient filler of all new cotton and rayon fibres make Safluff Crowned Padding uniformly soft and in keeping with the overall comfort of the furniture it decorates.

EASY TO HANDLE — Feeds easily off disposable fibre spools. Quickly and neatly cut to size. Completely clean and stable. Handles efficiently without waste, mess or need for hand shaping.

WRITE for information

Available in over 18 combinations of width and thickness

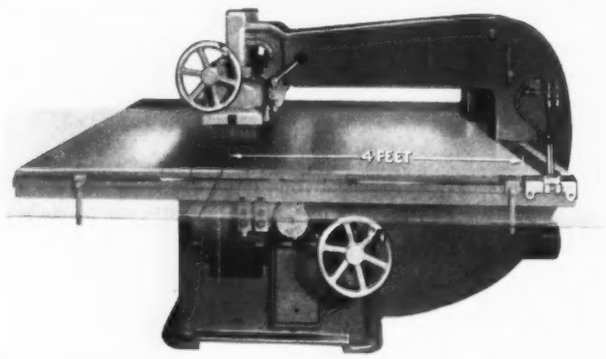
Sackner PRODUCTS INC.
901 Ottawa Ave., N.W., Grand Rapids 2, Michigan

World's largest manufacturer and creator of Specialized Fibre Products

It's NEW

- **Materials**
- **Equipment**
- **Supplies**
- **Components**
- **Literature**

For more information on items listed in the IT'S NEW Columns use the handy Reader Service Card opposite page 26. Complete details on these items will be sent to you by the manufacturer.



ACCURATE SIZING of 4 x 8 ft. panels of all types of materials is said to be possible with new, improved wide arm rip saw.

Larger Ripping Capacity With New Wide Arm Rip Saw

A new Model E rip saw, with a 48 in. ripping capacity from the blade to the overarm has been developed by Ekstrom, Carlson & Co. The saw employs the undercutting principle for greater rigidity and safety. Variable speed feeds are infinite from 56 to 225 FPM to provide correct feed speed for material and ability of operator.

Adjustable and removable throat insert of soft metal is said to eliminate sliver jams and prevents damage to the blade. Stiffening collars support the saw blade up to the level of the feed chain. The 8 roll pressure bar assembly adjusts smoothly and easily and stock as short as 4½ in. can pass through the machine. The free floating stock gauge is of "feather-touch" design.

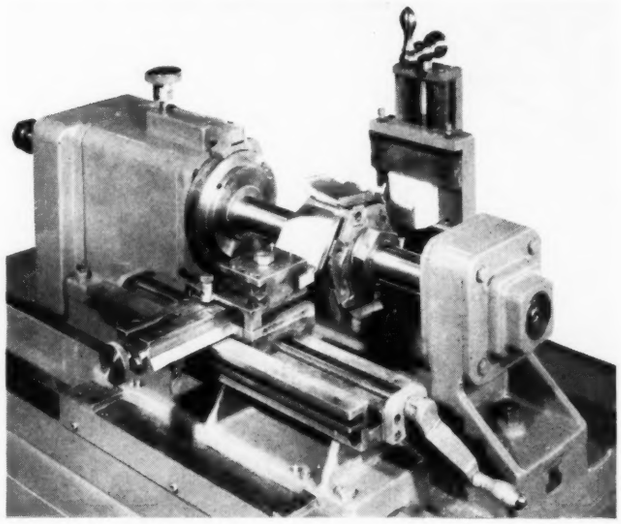
The saw will rip to a maximum thickness of 4 in. The distance from blade to arm is 48½ in. and distance from blade to both left and right edges of table is 48½ in. The table measures 87 x 80 in. Floor space required is 95 x 87¾ in. The saw is powered by a 15 H.P. motor.

For More Information Circle Reader Service Number 302

New Machine Enables More Accurate Jointing

A new No. 238 Jointer and Set-Up Stand designed to provide extreme accuracy in producing first class cutterhead conditioning has been introduced by Mattison Machine Works. The machine features the spindle mounted in three precision ball bearings, two of them being the preload type for added stability. The precision mounting is said to eliminate end play and vibration, making pattern tracking and jointing simple, fast and accurate.

The rugged jointing carriage, stone holder and pattern clamp are mounted on large dovetail ways extending the full length of the machine. The jointer carriage traverses the full length of spindles and is operated by crank and lead screw. The stone holder is adjusted by handwheel and fine thread screw and can be locked at any desired position.



PRECISION MOUNTING is said to eliminate end play and vibration, enabling simple, fast and accurate jointing.

The machine is equipped with template holder and tracing pin for joining formed knives, a positive smooth acting spindle brake, reversing drum switch and safety cover over start button.

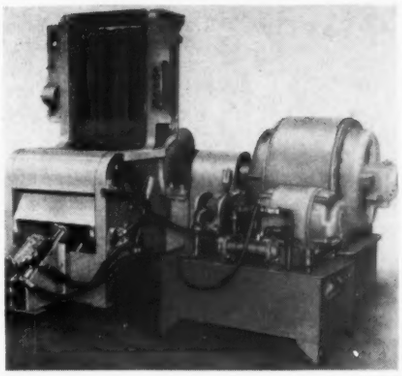
For More Information Circle Reader Service Number 303

Machine Produces Flakes For Particle Board

A new flaking machine, No. 1826, which produces 25,000 lbs. of green flakes or 14,000 lbs. of dry flakes per hour, is available from Newman Machine Co., Inc.

The machine handles a maximum log size 10 in. diameter by 24 in. long and a feed bar which operates at a maximum of 12 strokes per minute.

The cutterhead is of forged steel 18 by 26 inches with 18 high speed steel knives radially spaced and



SAFETY GUARDS enclose all moving parts of flaking machine which has all steel fabricated construction.

notched for making flakes of one inch length or to other requirements. The cutterhead body and knife clamps are hard chrome plated.

The reciprocating feed bar is hydraulically actuated and speed controlled for positive rate of feed of wood to cutterhead to produce flakes of uniform size and thickness. The thickness of flakes can be varied by rate of feed.

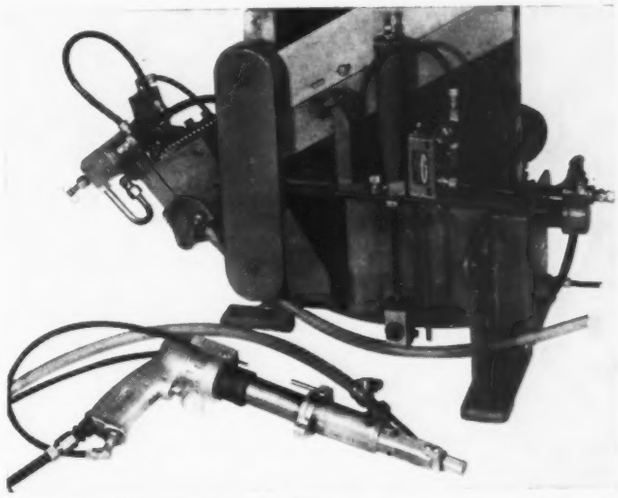
The knife grinding attachment is arranged so that knives can be set out and ground without removing knives or cutterhead from machine. The attachment mounts on back side of machine and has a high speed grinding spindle and motor.

An optional feature of flaking machine is automatic feed and remote control. The motor is 100 H.P., 1800 RPM and floor space needed is 5'6" by 7'6".

For More Information Circle Reader Service Number 304

Automatic Screwdriver Speeds Assembly

A new Powasert automatic screwdriver, Model B, designed to handle all wood screws from ½ in. to 1¾ in. in gauges 6-10, has been announced by the United Shoe Machinery Corporation. The new unit can drive round, flat and oval headed screws, as well as some pan, truss and binding head types. Slotted or cross-recessed drives including Phillips and Frearson or Reed and Prince can also be handled. A feature of



AUTOMATIC FEEDING of 26 different sizes and types of screws, without any change of fittings, at speeds up to 60 per minute, is possible with new screwdriver.

MARBLE

for the Furniture Designer
for the Furniture Manufacturer

A. L. BUSCHMAN, Inc., announces a new and exciting line of fine marble, imported direct from Italy.

Strictly conforming to "Old World" standards in color and quality, this marble is particularly suited for the design and manufacture of table tops, console tops, furniture parts and accessories.

For further information please write or call.

A. L. BUSCHMAN, Inc.

242 Fourth Avenue
New York 16, New York
GRamercy 5-2044

Band Sawn Adirondack Hardwoods

We are ready, willing and able to supply the furniture industry with fine Hardwoods manufactured on our own two band mills which annually produce over fifteen million feet of *Yellow Birch, Hard Maple, Beech* and *Cherry*. We dry in our own modern kilns a million feet of lumber every month.

MOULDING-DIMENSION

Our new Moulding—Dimension plant is equipped with the best and latest machinery including "Taylor Panel-Flo" and "Raybond" Electronic Gluers enabling us to produce both loose and glued up furniture dimension made from our own band sawn kiln dried lumber.

We invite your inquiry—write, wire or phone:

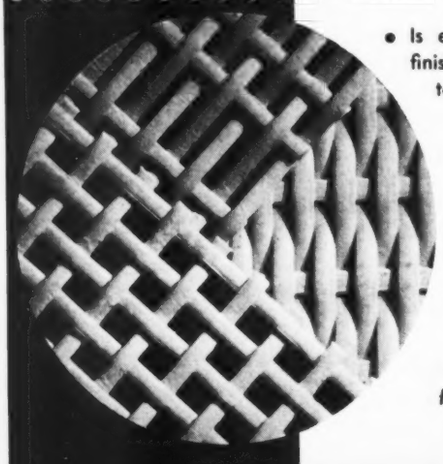
NORTHERN LUMBER CO., INC.

General and Sales Office
POLAND, NEW YORK *Phone* - FOland 4-3605

Saw mill and dry kilns—Poland and Riparius, New York
Dimension Plant—Newport, New York
Members—National Hardwood Lumber Association
Hardwood Dimension Manufacturers Association

FIBRO-KANE WEBBING

- Has the attractive variegated appearance of natural cane.
- Is much lower in cost, permitting its use in many applications where natural cane has proved too expensive in the past.
- Is easy to apply and finish—can be stained to harmonize with various woods.
- Does not become brittle with age. No undesirable loose "hairs" or splinters.



Samples and full particulars on request.

E. W. TWITCHELL, Inc.

3rd and SOMERSET STS., PHILADELPHIA 33, PA.

It's NEW

For further information, circle appropriate number on reader service card.

the tool is that 26 different types and sizes of screws are automatically fed and driven without any change of fittings, at speeds up to 60 per minute.

The Powasert screwdriver can be used anywhere within a 12-ft. radius of the feeder-separator, making assembly line production more flexible. Production is increased due to the fact that there is no wasted time, effort or manpower in picking up, locating, starting or fingering screws. Since the machine is operated with one hand, the other hand is free for handling, positioning or locating hardware.

The feeder-separator unit holds ten pounds of screws for up to 8 hours of continuous operation. Fast rotating separator gate and two-step elevator lifts provide positive one screw control and prevent jams.

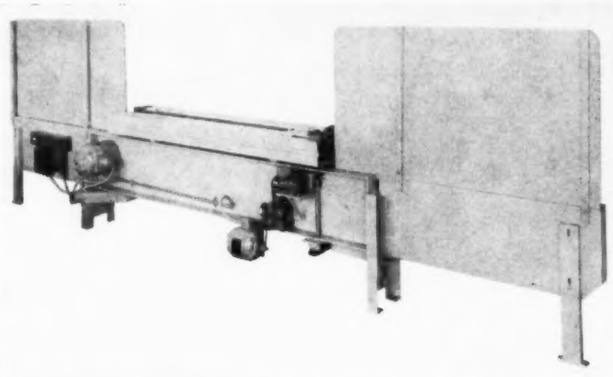
For More Information Circle Reader Service Number 305

Automatic Edge Sander Handles Varied Material

An automatic straight edge sander which gives continuous operation up to 40 ft. per minute, used for sanding edges on stiles, rails, panels, frames, doors, shelves, drawers, etc. is available from The Weber Showcase & Fixture Co., Inc.

The unit consists of a 5 ft. 6 in. loading section, 7 ft. working section and 5 ft. 6 in. unloading section. Work to be edge-sanded is gripped on edge between the front and rear chains with rubber pads. The machine will accommodate work varying in thickness from ¼ in. to 2 in. and widths from 3 in. to 7 ft. There is no limitation to the length which can be handled.

A device is provided to create constant upward pressure to the belt against the edge being sanded. The pressure device has a belt-guiding shoe which can be removed and replaced by other shaped to correspond



CONTINUOUS OPERATION up to 40 ft. per minute is claimed by manufacturer of automatic straight edge sander.

FOR MORE INFORMATION

about New Products, News Briefs or New Literature . . .

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EACH ITEM REVIEWED IS NUMBERED WHERE IT APPEARS IN FDM

Simply circle the corresponding number on a reader service card, *print* your name, title, company and address and mail the postage-free card to us. We will take it from there.

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FIRST CLASS PERMIT NO. 17269, CHICAGO, ILLINOIS

FURNITURE DESIGN and MANUFACTURING
608 S. DEARBORN ST.
CHICAGO 5, ILLINOIS

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about New Products, News Briefs or New Literature...

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to the shape of the edge being sanded. Shoes can be made of metal, wood, hardboard or other materials as required by user.

The machine is 2 ft. wide and 18 ft. long; sanding belt is approximately 3 in. by 18 ft. 6 in., is driven by a 2 HP motor and travels at 3600 ft. per minute.

For More Information Circle Reader Service Number 306

Synthetic Yarn Used In New Chair Material

A new material called Taylon, made up in a synthetic yarn, is being offered by Webcraft, Inc. The tough, weather and abrasive-resistant light-weight material is made from Marlex resin produced by Phillips

WASHABLE, LONG WEARING material, called Taylon, is adaptable for indoor or outdoor furniture use.

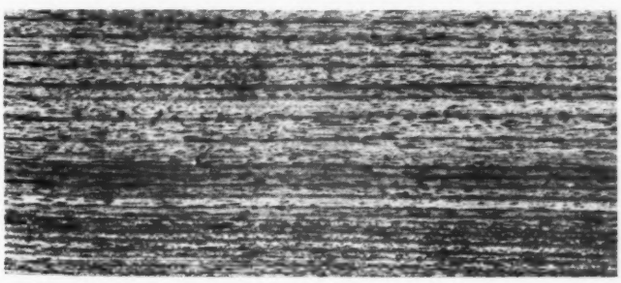
Chemical Co. which transforms natural gas into high density polyethylene.

The material is washable, stands heavy wear, has the texture for indoor as well as outdoor use and is available for chairs in soil resistant shades of straw and white.

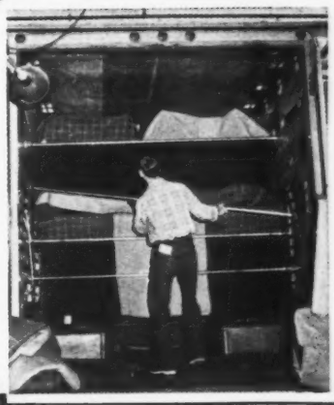
For More Information Circle Reader Service Number 307

Laminate Patterns In New 3-Color Woodgrains

Four new three-color print woodgrains have been introduced by St. Regis Paper Co., Panelyte Division. They include Quartered Elm, Empire Walnut, Hard-rock Maple and Sliced Walnut. The Quartered Elm

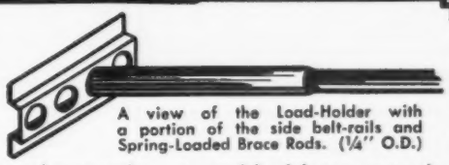


QUARTERED ELM three-color print laminate pattern is available in straight grain.



REDUCE
IN-TRANSIT
DAMAGE
WITH THE
FAST • EASY-TO-USE
• LOW COST
LOAD-HOLDER
(Pats. Pend.)

Snap the Brace Rods into the belt rails and secure the load! Easy to load — easy to unload—and fast!



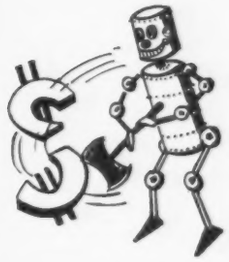
A view of the Load-Holder with a portion of the side belt-rails and Spring-Loaded Brace Rods. (¼" O.D.)

- Eliminates the use of ropes and webbing.
- Secures furniture and other loads greatly reducing the possibility of damage.
- Rods moveable on 1" centers.
- Versatile—can be used for any type of load from case goods to beds.
- Easy to install on sides of trailer, either over existing lining or under lining on new or reconditioned trucks or trailers.
- Used by leading furniture manufacturers.

Write, wire or call for our complete specification sheets, installation methods.

LOAD-HOLDER, CARGO STABILIZING DEVICES
8242 McCormick Blvd. • ORchard 6-9055 • Skokie, Illinois

LOOK WHAT AUTOMATION HAS DONE to the price of VICTOR DELUXE LEGS



Victor leads again! First in quality with Deluxe legs, and now first in value with new low prices. Best of all, these cost-cuts have been made possible by automation and modern manufacturing methods without sacrificing quality. We call it "operation money-saver" and you reap the benefits.

	¾" FERRULE			2" FERRULE							
LENGTH	2½"	3"	4"	5"	6"	7'	8"	9"	10"	11"	12"
1000 or more	.25ea	.27ea	.29ea	.36ea	.38ea	.40ea	.42ea	.44ea	.46ea	.48ea	.50ea
100 to 1000	.27ea	.29ea	.31ea	.38ea	.40ea	.42ea	.44ea	.46ea	.48ea	.50ea	.52ea

Deluxe legs are turned from kiln dried hardwoods, 2¼" top diameter. Sanded satin smooth and finished in your choice of Walnut, Mahogany, Maple, Blonde, Natural or Ebony. 5/16" hanger bolt attached. Bassick-Sock solid brass ferrules used exclusively.

NOTE — conical legs with glide instead of ferrule available. Write for prices.

USE WITH OUR PATENTED CLINCH NUT PLATES

Victor WOOD PRODUCTS COMPANY
1514 Wealthy, S.E., Grand Rapids 6, Michigan
Phone GLendale 4-8224 We lead, others follow

You've never seen anything so beautiful as VICTOR'S new custom finished

DANISH LEGS

Here is grace and beauty that is destined to set a new trend in style. Specially designed Danish Legs by Victor are of kiln dried Northern soft maple and feature an authentic Saddle finish that utilizes six rubbing and spraying operations for unmatched depth and richness. Brass glides and 5/16" hanger bolt attached.

	4"	5"	6"	8"	10"	12"
1000 or more	.26	.28	.30	.36	.42	.48
100 to 1000	.28	.30	.32	.38	.44	.50
Attach with our patented clinch nut plates						

- *Fresh, new design*
- *Rubbed Saddle finish*
- *First quality to match your finest furniture lines*

VICTOR IS FIRST AGAIN WITH THE NEW IDEAS IN LEGS!

Victor WOOD PRODUCTS COMPANY
1514 Wealthy, S.E., Grand Rapids 6, Michigan
Phone GLendale 4-5224 "We lead, others follow"

Specify DE-STA-CO
FOR SPLIT-SECOND CLAMPING

The World's *First* Line of production toggle clamps is your *first* choice for any work-holding problem. If you require fast loading, clamping and unloading of wood parts (or other materials) and *positive control* for gluing, shaping, sawing, assembly or other phases of furniture production, check your De-Sta-Co Catalog *first*—or call your nearby distributor.

The clamps shown are representative of the 140 models and sizes in 13 basic styles; specials are available for your extraordinary problems. Sizes range from 1 ounce Tiny Toggles with 42 pounds holding pressure to 5 pound models developing 2 tons. All have features which are recognized as the standards which others imitate but never equal and you can get fast service and the good advice of top sales engineers from our stocking distributors in every industrial area.

DE-STA-CO
Originators of Production Clamping
DETROIT STAMPING COMPANY
419 MIDLAND AVENUE • DETROIT 3, MICHIGAN

It's NEW

For further information, circle appropriate number on reader service card.

is available in straight grain only. Empire Walnut, ideally suited for tables and case pieces, is designed to allow any number of cuts without disturbing the grain structure. Hardrock Maple presents the full beauty of maple to a decorative laminate and is available in straight and cross grains. Sliced Walnut, available in straight grain only, allows complete freedom of design for furniture manufacturers but maintains grain continuity from top to bottom. Samples are available.

For More Information Circle Reader Service Number 308

New Literature

CONTINUOUS HINGES, both standard and semi-standard, in any commercial metal is featured in a complete data catalog from The Rex Hinge Company. The catalog contains illustrations and detailed dimensions of over 1,900 hinges and includes special continuous hinges developed to meet unusual application requirements.

For More Information Circle Reader Service Number 319

COMPLETE FINISHING SYSTEMS for a fully integrated finishing installation is presented in an illustrated index folder by The DeVilbiss Company, covering spray guns, automatic spray coaters, flow and dip coaters, industrial ovens, air compressors, dust collectors, spray booths, industrial power washers, hot spray systems, paint tanks and pumps, hoses and connections and phosphatizing systems.

For More Information Circle Reader Service Number 320

PRODUCTION LINE ASSEMBLY BOARD, Versaflake, is described in a brochure from the Silvatek Division, Weyerhaeuser Company. The flakeboard product, designed exclusively for production line assembling is said to have strength, thickness, uniformity, controlled density, excellent workability, grainless surface and large panel size. A sample piece of the board is included with the brochure.

For More Information Circle Reader Service Number 321

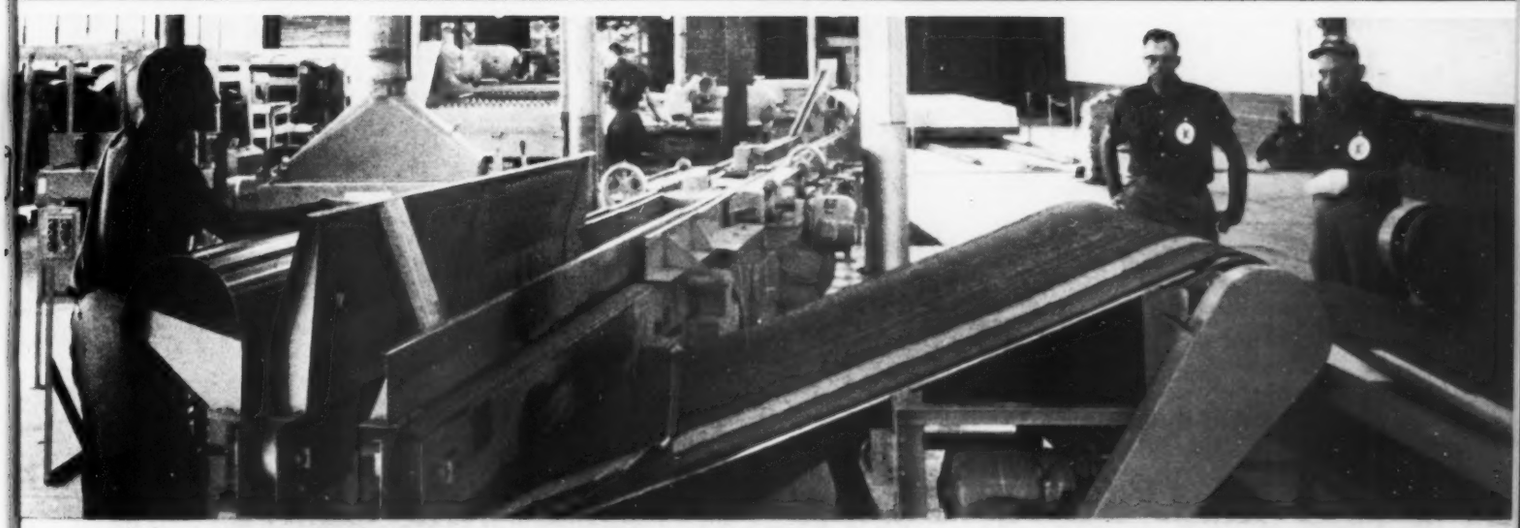
PLYWOOD STOCK CATALOG, featuring prompt, direct import-to-user service on plywoods from all parts of the world is offered by North American Plywood Corporation. The catalog includes stocks ranging from domestic to rare and distinctive exotic woods.

For More Information Circle Reader Service Number 322

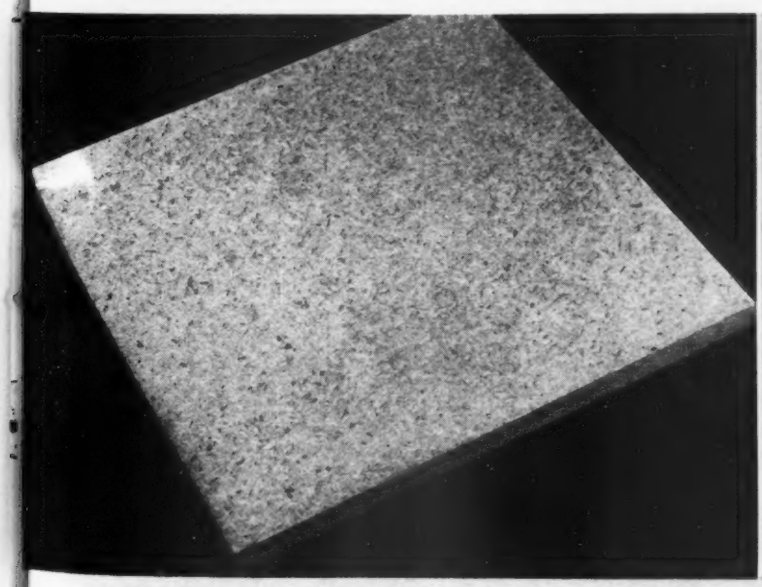
NEW FDM FEATURE!

Furniture Engineering

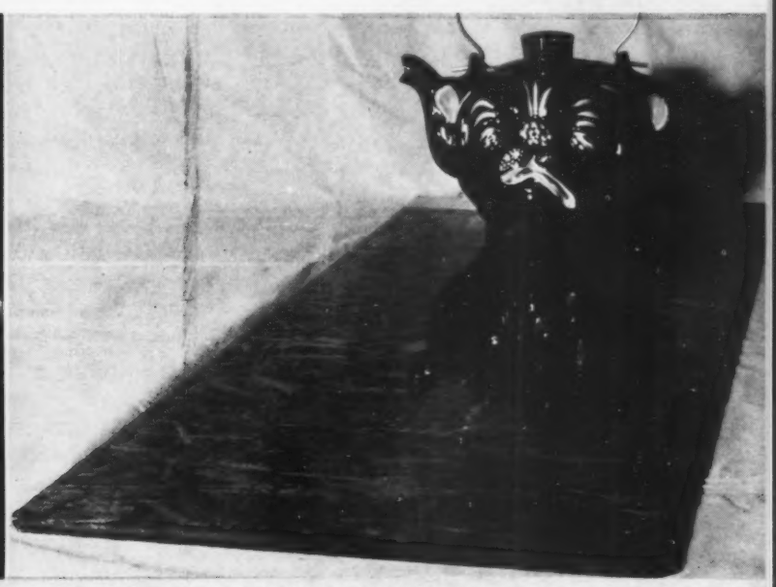
A technical section for managers, department heads and technicians responsible for production, planning, cost analysis and research, in the furniture, upholstery, and bedding industries.



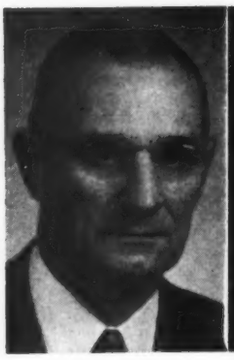
DESCRIPTION OF MAJOR EQUIPMENT in operation at the Kroehler Manufacturing Co. plant, Meridian, Mississippi (a partial list), is an added feature of the "Furniture Engineering" section, page 34, this issue. For still further information about this and other equipment, use the handy Reader Service Card, opposite page 26.



MORE ABOUT PARTICLE BOARD is the subject of Carl A. Rishell's feature on page 30. His informative column appears in every issue of FURNITURE DESIGN & MANUFACTURING.



A COMPARISON OF FURNITURE FINISHES, by F. H. Thomas, furniture finishes expert, includes his own, perhaps controversial, opinions. See article on page 32.



WOOD TECH

More About Particle Board

A regular monthly feature by **CARL A. RISHELL**
Consulting Wood Technologist, Washington, D. C.

This column has included several discussions of various aspects of particle board because of its widespread interest to the furniture industry. Its scope is such that adequate coverage would require a very lengthy discourse which would exceed the limitations of the column's space and the readers' time. The importance of particle board as a furniture raw material cannot be over-emphasized; the furniture manufacturer should know as much about it as he does about lumber, glue or finishes.

There are several kinds of particle board, each determined by the kind of material from which it is made. In Europe, very fine boards are made from flax sheaves, a waste product in linen manufacture. In sugar producing countries, particle board can be made from bagasse, another waste product. There are a number of other raw materials from which surprisingly fine boards can be produced.

However, in the United States, the most available raw material comes from the forests. So for the present at least, the furniture manufacturer in this country can confine his interest to *wood* particle board. If and when other kinds become widely available in this country, there will be time to study them.

Wood particle board is a product made from relatively large pieces of wood as compared with fiber board which is produced from wood. As its name connotes, fiber board is produced by a process that separates the wood's individual fibers, then re-mats them. For practical purposes, it is as far removed from lumber and particle board as is paper.

On the other hand, wood particle board is closely related to lumber products and retains many of their properties. This is important to the furniture manufacturer as he has worked and handled lumber so much that it traditionally has been the preferred raw material for his products.

Wood particle board, as we know it in the United States, is quite closely related to laminated lumber and plywood. It is as much a natural wood product as either of these well known furniture materials. For example, if thin sheets of veneer are cut into short and narrow sections, coated with glue, spread out uniformly into a sheet or mat and pressed in a veneer press until the glue has set, the resulting product will be a fairly good grade of particle board. It would be known as a *flake board.*

A somewhat similar result could be obtained by using a quantity of toothpicks that had been broken to about one-third of their original lengths. The specific name given this product by the particle board industry is *splinter board.* Other wood products, such as shavings and excelsior, can be used in similar fashion.

The question most often asked by those who are not familiar with the product is where can it be used in the manufacture of furniture. Many answers can be given, for much depends on the economics involved—particularly the cost of competing raw materials.

For example, the ends and backs of case goods often are made of thin plywood. Thin wood particle board is satisfactory for this purpose, but it may or may not be competitive in price with plywood or hardboard. The best answer comes through obtaining comparative price quotations.

Generally, particle board will have its greatest advantages in thicknesses of ½ inch or more. Plywood and particularly hardboard ordinarily are thin materials and often have a price advantage for thicknesses under ⅜ inch. Drawer sides and bottoms are usually in that dimensional category.

Particle board comes into its own for parts that are made of relatively thick materials. Drawer fronts ordinarily are made from lumber over ½ inch thick; pricewise, particle board can more than compete for this purpose and, of course, it is suitable.

For furniture tops, particle board is the ideal material. It is inexpensive as compared with solid lumber—probably half the price—and if properly used, is more satisfactory.

Within the next ten years, the majority of American furniture probably will be made with particle board cores for the tops. The reasons for this are relatively low cost, freedom from sunken glue joints, and resistance to warping. Also, most manufacturers will use this material for furniture tops without a cross band —a tremendous economic advantage.

In addition to case goods, there are many other products where wood particle board can be used to advantage. Formed chair seats and backs for restaurant furniture are produced in substantial quantity by at least one of the pioneering firms in the particle board field.

Curved pieces are not difficult to make, provided they can be produced in substantial quantity to pay for the special equipment required to make them. Toilet seats, for example, are quantity items that can be economically produced with equipment designed for the purpose. Although curved drawer fronts could be easily made, a principal difficulty would be standardization on one or two patterns that would make quantity production worthwhile.

These items, however, are somewhat special and should be purchased from firms that make a specialty of producing them. The average particle board manufacturer is equipped to make sheet material only and, undoubtedly, would go broke trying to make curved products.

It has not come to my attention that hardwood dimension plants have gone into the business of using the material for finished dimension stock, but probably some of them are already doing so; there is no reason why they

cannot. If a furniture manufacturer wants to buy tops and other products that can be made from sheet material, he doubtlessly would have little trouble persuading his supplier of hardwood dimension to cooperate with him. In any event, it is only a matter of time before the hardwood dimension manufacturer enters the field—all he needs is sufficient expression of interest by his customers.

Although there are innumerable uses for particle board in the production of furniture, there are some furniture parts for which particle board is not the best material to use. Desk and chair legs require too much strength for particle board; most turnings can be made best with solid wood, as can many of the mouldings used for trim in some furniture.

It is true that nearly any furniture can be redesigned so that most of it can be made entirely of particle board, but to go 100 per cent in this direction would likely change the original appearance too much to be satisfactory. On the other hand, it would be a most unusual piece of furniture in which no part or parts could be of particle board.

Most potential users of particle board, when initially investigating its uses, want to know how it compares with lumber or plywood. A realistic comparison is quite sensible and helpful. However, if the potential user insists that the compared products be identical in every property, even though some of the properties may not be needed, then he had better save his time.

For example, few if any could break a 1″ x 6″ x 3′ piece of lumber across his knee, but he could break a piece of particle board of the same size. But look at it another way: if an edge glued panel of wood is cut across the grain so that it is of the above dimensions, but with the grain of the wood at right angles to the length of the piece, even a child could break it. A well made piece of particle board would prove superior in strength in the same test.

The point to be considered is not whether one product is superior or equivalent to the other in this respect, but whether it is adequate for the purpose. If it is adequate, there is no point in requiring anything further. As a matter of fact, in the writer's opinion, several particle board manufacturers could well afford to redesign their products so as to provide smoother surfaces even at the expense of reducing some of the unneeded strength properties.

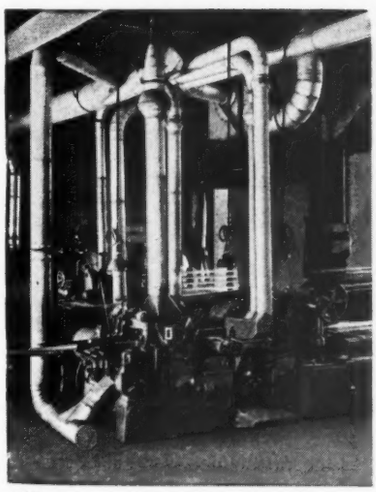
Of course, it is true that for some products, such as sink tops requiring a large hole cut in the center of the panel, the higher the modulus of rupture the better. For most purposes, the furniture manufacturer is not interested in this kind of construction, so he should be concerned with the properties he needs most, and forget about the excess strength which he does not need.

What, then, are the properties needed in particle board by the furniture manufacturer? There is no overall answer as the uses are too varied, but let's consider only core stock for furniture tops. This stock must be a stable material so that it will not shrink, swell and warp with every change in the weather. Fortunately, particle board is very good in this property.

However, there are two types of boards available to the furniture manufacturer – those made by the *extrusion* process and those by the *flat-bed forming and pressing* process. The respective products of the two processes have much dissimilarity in properties and appearance.

Continued on page 40

INCREASE PRODUCTION!



OBP dust and chip collection from high speed moulder incorporates ball joints for quick, easy access to machine for set-up and maintenance. Proper engineering of system eliminates any possibility of chip fall back onto work, and guarantees years of trouble-free operation.

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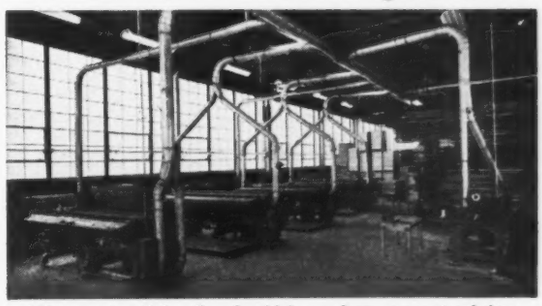


OBP system installed on line of multiple saws keeps area neat and clean — promotes much better working relations, and actually is responsible for increased production.

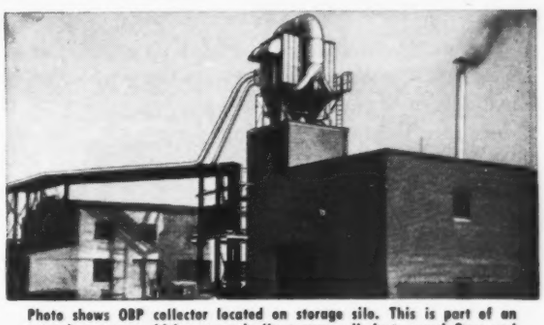


Photo shows OBP collector located on storage silo. This is part of an extensive system which automatically conveys all dust, wood flour and chip waste to furnace for use as free fuel.

Furniture Engineering

A Comparison of Furniture Finishes

From a paper presented before the cost and production sessions, 1959 convention of the National Association of Furniture Manufacturers

EPOXY FINISH ON WALNUT—Height of gloss is shown by reflection. Sherwin-Williams materials were applied as follows: 1) Artistain S61N1, reduced 500 percent; 2) washcoat CA17773 sealer reduced 100 percent; 3) filler D70N1; 4) sealer CA17773; 5 & 6) two coats Super Kemvar A; and 7) oil rubbed and compounded.

POLYESTER FINISH ON WALNUT—Compare with height of gloss of panel at left; both were photographed under exactly same conditions and lighting. Finishing procedure as follows: 1) sealer CA17829; 2) Super Kemvar B, CA17828; and 3) oil rubbed and compounded.

BY F. H. THOMAS

Photographs by R. A. Helmers, Editor

Many surveys have been made to determine what sells a piece of furniture. Invariably, style, or design, rates first and finish a close second. The style or feeling of the piece, such as "Early American," "Ranch Oak" or "Traditional" is, of course, of prime importance to us in planning our home. But tied in very closely to this is the finish. A good design without the right finish to enhance it will not sell. Style is important, but ever-changing with the times; the beauty of the wood (brought out by the right finish) is timeless.

What does the public mean by the word "finish?"

In a recent survey to determine the consumers' awareness and knowledge of furniture finishes it was found that finish meant wood, grain, color, gloss or sheen, feel, beauty of grain, resistance to marring and scratching, heat resistance and resistance to staining from water or alcohol.

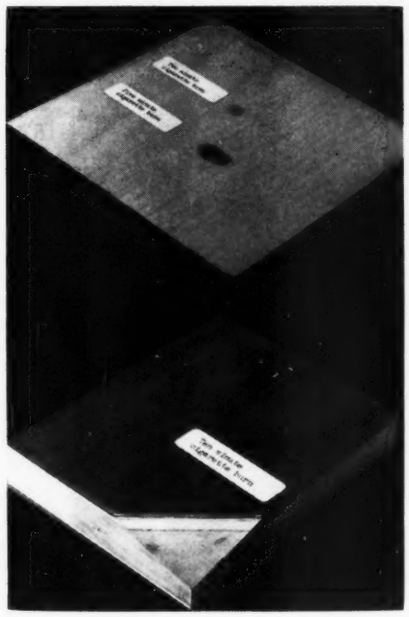
This survey brought out that in the consumers' minds there was a definite relation between finish color and period style of furniture. They were able to name woods and had a decided preference for woods most suitable for various period styles of furniture, i.e.

American Colonial—Maple
French Provincial—Cherry
Traditional—Mahogany
Transitional—Walnut
Modern—Walnut

Actually there were many different woods named: American Colonial had the fewest, five; Modern had twenty. Mahogany was named among the three most suitable woods for every period style of furniture. For example it has been determined that Mahogany finished in a tan or warm brown tone will sell just as readily in Transitional or Modern designs today as Walnut.

So you see it has been established that the finish of furniture and its characteristics are of utmost importance to consumers and that they have definite color, wood, and even period association with it.

The manufacturers of furniture finishes have for a long time worked



BURN PROTECTION—Top panel shows result of two-minute and five-minute cigarette burns on maple plywood with polyester finish. Bottom panel, with aluminum foil construction, was subjected to ten-minute cigarette burn with no visible effects. Both panels received the following finish coats: 1) sealer CA17829; 2) Super Kemvar B, CA17828; and 3) rubbed, (top panel not rubbed.)

closely with the furniture manufacturers and their designers to choose the right color and finish to bring out the style, design and esthetic beauty that the natural qualities of the wood offer so profusely.

At the same time we have conducted in our research laboratories a never ending search for better raw materials that would make it possible to up-grade the finish and keep up with the modern needs of the home owner. Such research has brought Kem Var, Homoclad, non-staining lacquers, acrylic lacquers, blond toners and better stains and fillers to the market.

With the popularity of the family room and T.V. room there is more

Continued on Page 39

F. H. THOMAS, author, is a technical executive with Sherwin-Williams Co., Chicago. Opinions expressed herein are his own and not necessarily those of this magazine.

COMPARATIVE PROPERTIES OF COATING MATERIALS WITH PLASTICS

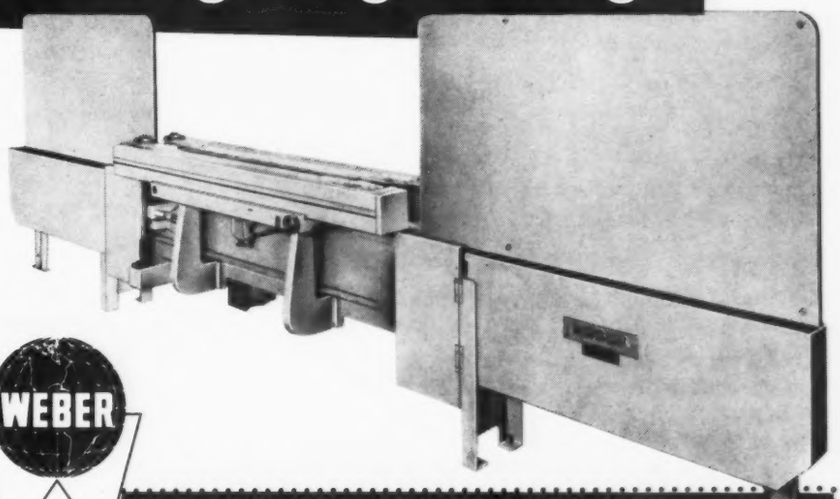
** marks indicate desirable properties. Total * marks indicate relative desirability of the finish based on these tests alone. For further advantages of Polyesters and Epoxies, see text.*

Test	Water White N/C Lacquer Finish	Amine Lacquer Finish	Epoxidized Lacquer Finish	Alkyd Urea Synthetic Finish	Epoxy Finish	Polyester Finish	Laminated Plastic
Cold Check Ten Cycles	* OK	* OK	* OK	* OK	* OK	* OK	* OK
Mar Resistance	deep mar	light mar	light mar	light mar	* no mar	* no mar	* no mar
Rate of wear Taber Abrasor Grams/100 cycles	.107	.104	.105	.108	* .067	.117	* .052
Color Retention 42 hours intense Florida sunlight under glass	* very slight darkening	* very slight darkening	* very slight darkening	* very slight darkening	slight darkening	* very slight darkening	* very slight darkening
Alcohol 100 proof (trapped o'nite)	softens, whitens, recovers	softens, recovers hardness	softens, recovers hardness	softens, recovers hardness	* no effect	* no effect	* no effect
Water (trapped o'nite)	* no effect	* no effect	* no effect	Slight softening, recovers	* no effect	* no effect	* no effect
Tri Sodium Phosphate cleaning solution (trapped o'nite)	Slight softening, recovers	Slight softening, recovers	Slight softening, recovers	Slight softening, recovers	* no effect	* no effect	* no effect
Hydrochloric Acid 37% 2 cc 1 hour	* no effect	* no effect	moderate discoloration	moderate discoloration	* no effect	* no effect	loss of gloss, slight softening, recovers hardness
Sodium Hydroxide 10% (trapped o'nite)	very slight softening, recovers	* no effect	* no effect	* no effect	* no effect	loss of gloss, softens, recovers somewhat	* no effect
Acetone (trapped 1 hour)	softens badly	softens, recovers	softens, recovers	* no effect	* no effect	* no effect	* no effect
TOTAL (see explanation)	4*	5*	4*	4*	9*	8*	9*

Chart Courtesy Sherwin-Williams Company.

for CONTINUOUS straight edge sanding!

UP TO 40' PER MINUTE USE WEBER'S **SES 205**



Stiles, rails, panels, frames, doors, etc., move continuously without limitation in length on the 18' SES-205 bed. Work is rubber-gripped and held at a constant pressure for its entire length. The sander will accommodate thicknesses from ¼" to 2", and widths from 3" on up. Belt-guiding shoe can be replaced to correspond to any edge shape. You'll turn out more and better edge sanding *faster* with the Weber Model SES-205.

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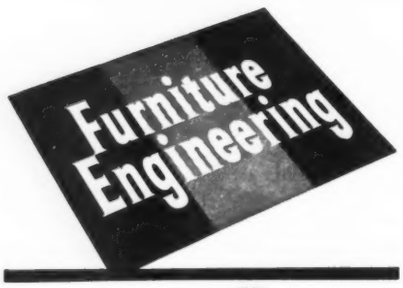
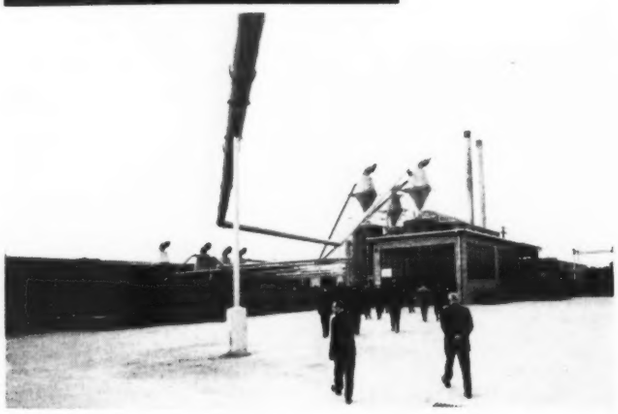


For further information on equipment, circle appropriate number on FDM Reader Service Card.



Brief description of woodworking equipment at Kroehler plant

Partial list on which details were available at press time.

MODEL 464-M SURFACER, by S. A. Woods Machine Co., is equipped with a 75 HP motor top head, 30 HP motor bottom head and 25 HP feed motor. All gears are completely guarded and are of the helical type with 2½ in. wide face of machine-cut, high tensile strength steel. Top feed-in rolls are in 6 sections and the roll sections and hoist system are mounted above the top roll yokes. Double springs are applied directly to the yokes. The entire roll system is run in grease lubricated ball bearings, mounted in sealed housings. Top and bottom 6-knife cylinders accept thin knives up to two in. wide. The large diameter of the cylinders allows a strong section to back up each knife and provides for a strong knife clamping.

For More Information Circle Reader Service Number 309

MODEL 43-A END SURFACER, manufactured by Irvington Machine Works, end trims and provides a smooth finish on the ends of lumber. The machine has accurate and precision steel roller chain, a specially constructed precision steel chainway, heavy duty adjustable driving sprockets and special non-marking steel lugs.

For More Information Circle Reader Service Number 310

MOORE CROSS-CIRCULATION DRY KILN, designed and manufactured for the Kroehler Mfg. Co. by Moore Dry Kiln Co., measures 26 ft. wide and 88 ft. long, with a combined capacity of over half a million board feet of lumber, depending on thickness. The kilns are of masonry construction with double-aluminum insulated doors to retain required conditions of temperature and humidity. Each kiln has eleven 60 in. multiple-blade fans, all on one shaft, which produce a high rate of transverse circulation, insuring uniform circulation and drying throughout the charge. The heating system is divided lengthwise and sub-divided cross-wise to provide uniform temperature control. The kilns may be handled progressively or by a charge method. Moore Master Automatic three-pen recorder controller controls temperature, humidity and ventilation. This instrument is capable of carrying one set of conditions on one end of the kiln, another set on the opposite end, or can carry uniform conditions throughout.

For More Information Circle Reader Service Number 311

MODEL 19 CUT-OFF SAW, by Irvington Machine Works, enables full vision of the cutting operation. The unit gives easy, smooth-flowing performance from random width single cut action to one specific length with automatic action. Stops can be set to any length from ⅛ in. to 7 ft. The machine can cut material 2½ in. thick by 18 in. wide with a 16 in. saw blade and 3½ in. thick by 17 in. wide with an 18 in. saw blade. Length of strokes are adjustable to 12, 14, 16, 18 or 20 inches. Speed of stroke is 42, 56 and 65 cuts per minute or faster. Feed mechanism is driven by a ½ HP 220-440 volt, 3 phase, 50 or 60 cycle, 720 RPM ball bearing motor.

For More Information Circle Reader Service Number 312

MODEL 202 STRAIGHT LINE RIPPER, by Mattison Machine Works, features wide-range feed speeds, overcut, single chain construction which automatically holds feed chain in perfect alignment with the saw for straight-line accuracy, and one-piece jam-proof blocks under saw, allowing cutting of sliver edges. The unit will saw stock any thickness up to 4 in. at high feed rates, after which exposed joints can be glued direct from the saw, eliminating the glue jointer operation and saving ⅛ in. stock on each edge. The spindle motor is line start, steel-shell, shaftless, 3600 RPM with built-in 220, 440 or 550 volt, 60 cycle, 2 or 3 phase with 10, 15 or 20 HP. The ripper also has a brake for bringing saw spindle to a quick stop. Saw diameters from nine inches to 14 inches diameter may be used. Feed motor is 4-speed, ball bearing, 2 HP from 600 to 1800 RPM.

For More Information Circle Reader Service Number 313

MODEL 715 SURFACEMASTER FACING PLANER, by C. O. Porter Machinery Co., offers variable speeds from 40 to 120 feet per minute for stock widths from 24 in. to 36 in. The unit features a spindle speed of 5100 RPM with belted motor drive. It is easily adaptable to conveyorizing for fast feeds, free cutting and capacity to produce stock with one flat side in volume. The infeed safety bar is designed to protect the pin retainer bars and the drive mechanism is protected by a friction plate clutch which also protects the pins and pin retainer bars in case of a jam. The outfeed table is tangent to the cutting circle of the cylinder and can be raised or lowered by means of a hand-wheel.

For More Information Circle Reader Service Number 314

MODEL 435 H MULTIPLE CUT-OFF SAW, manufactured by Mereen-Johnson Machine Co., has heavy cast iron side frames connected by welded steel beams or cross girts and cast iron arbor slides mounted on the side frames to support bearing boxes and guide the vertical arbor adjustment. The saw has a beam type arbor mounting,

designed to assure perfect arbor alignment for smooth performance. Center bearings are adjustable along the beam by rack and pinion so that any saw spacing can be obtained. The machine has precision block type chains and snap feed lugs which permit a complete removal or respacing of lugs rapidly, even while chains are running. Feed rates are 15 to 45 ft. standard, up to 200 ft. on chain machines and 500 ft. on roll feeds.

For More Information Circle Reader Service Number 315

MODEL 229 MOULDER, by Mattison Machine Works, is built in three sizes for handling stock up to 6, 8 or 10 in. wide by 4 in. thick. It has fast feed, high cutterhead speed, and is furnished with conventional roll feed or can be had with trackless non-sag feeding chain. The unit is adapted for multiple-knife operation direct from line at 3600 RPM on 60 cycle current and from 4800 RPM and up with frequency changer. The feed works unit is equipped with ball and roller bearing and is fully enclosed to exclude dust and dirt. Top head unit includes housing for its individual built-in motor; is constructed as a one-piece yoke with built-in channel section. Cutterhead motors are shell-type, shaftless, line-start, developed for built-in direct application. Standard motor sizes are 10 HP for top and bottom heads, 5 HP for side heads and 7½ HP for feed with four-speed and reverse.

For More Information Circle Reader Service Number 316

MODEL 441-A MULTIPLE GANG RIP SAW, manufactured by Mereen-Johnson Machine Co., is designed for ripping glued-up panels into strips for drawer sides, backs, slides and other moulded parts. The unit has one piece, well ribbed base casting, and the beam mounted arbor is vertically adjustable by hand or power. All eight main feed rolls and short stock auxiliary rolls are driven and each infeed and outfeed top roll is independently mounted in a heavy one-piece yoke with center spring tension. Variable feed rolls are 5 in. in diameter for easy stock entry. Hand wheel raises and lowers arbor unit; a hand arbor brake provides sure, quick stops.

For More Information Circle Reader Service Number 317

EIGHT-OPENING MULTI-PLATEN HOT PRESS, manufactured by Washington Iron Works, provides heat and pressure to transform hardwood fibers into "Cultured Wood." Under temperatures of around 400° F and pressures of over 2,000 tons, the press processes 46,000 board feet per day. The equipment can produce panels from 1/10 in. to 1 1/2 in. Automatic loading and unloading equipment is also manufactured by Washington Iron Works. By pre-setting press controls the equipment operates automatically and keeps a continuous record of temperatures, pressures and time cycles.

For More Information Circle Reader Service Number 318

POWER TRANSFER CAR, manufactured by Leitelt Iron Works, features one-man operation, eliminating need of extra manpower. The car will move load after load of lumber at low operating cost. It will move kiln loads of lumber in and out of storage tracks, charge and discharge dry kilns, and deliver loads to a first line machine.

For More Information Circle Reader Service Number 323

Precision is Vital

Whether it's space travel or the manufacture of furniture . . . strict quality control and precision craftsmanship make the difference.

Roanoke Woodworking's new and modern plant is geared to automated production of precision-made wood frames, dimensions, parts and turnings. Master craftsmanship of finest kiln dried Appalachian hardwoods assures positive quality control of each piece.

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Design Piracy Is Topic of IDI Annual Meet

AT IDI CONFERENCE, left to right are: John Pile, George Nelson and Company, Inc.; George E. Frost, Chicago attorney with Frost and Vandenburgh; H. Creston Doner, new IDI president, design director for Libby-Owens-Ford Glass Co.; and Alan Latman, executive secretary of the National Committee for Effective Design Legislation.

BY R. A. HELMERS, EDITOR
Photograph by author

"Effective protection for original designs can become a reality if enough support is given by designers, manufacturers and their trade organizations," Alan Latman told the 1959 National Conference of Industrial Designers Institute on October 26. He is counsel and executive secretary of the National Committee for Effective Design Legislation. He told how a new Senate bill, S. 2075, recently introduced by Senators O'Mahoney, Wiley and Hart, provides for a Government administered design registration system which offers protection of designs. The bill further provides that a design owner may recover from anyone who, without his authority, purposefully makes or imports articles embodying a copy of the protected design.

George E. Frost, attorney, outlined why present copyright and patent laws do not cover designs of "useful articles," including furniture.

This discussion was followed by a slide lecture by John Pile which showed how certain articles, including furniture, are being copied. He also showed a product design developed by his firm, George E. Nelson and Company, Inc. which was not produced for fear it would be copied. The high cost of tooling and introduction of the product made it extremely risky for the client, who would pay the cost of making the product successful.

Earlier at the meeting the Institute presented its Silver Medal to General Lawrence Whiting, chairman, American Furniture Mart, whose sponsorship banded together the first group of designers in 1938.

Elected president was H. Creston Doner, design director of Libby-Owens-Ford Glass Co., Toledo, Ohio. ■

FURNITURE Digest for Management

For copies of Bulletins, circle appropriate Reader Service Number.

Continued from page 9

merchandising, succeeding *Angelo J. Smith, Jr.* who was named manager of advertising and sales promotion. *James R. Rumsey* was named manager of sales programs for "Dacron" polyester fiber, succeeding *Otto J. Lutness* appointed manager of new products in merchandising.

Customer Expansions & Personnel Changes

HEMENWAY FURNITURE CO. opened a new store at the location of the former *Monroe Furniture Co.*, Monroe, La. *Alton Waschka* is manager of the store which features a Maple Shop and interior design service. The firm also has chain stores in other cities in Louisiana.

ADAMS FURNITURE STORE, 47th and Troost, Kansas City, Mo. is now managed by *Mr. and Mrs. Larry Justus. Fred Adams,* owner, also has a store at 31st and Holmes.

JORRIE FURNITURE STORE, 930 S.W. Military Drive, San Antonio, Tex. opened under the management of *Robert H. Bowman.* The store features an Ethan Allen Gallery of Early American furniture and an Expression Group with Modern and Contemporary furnishings. The firm also has a store in San Pedro.

BARKUS FURNITURE STORE is moving from its Main St. location to 265 S. Orange, Sarasota, Fla. *Phil Barkus* is owner-manager of the store which has 7,800 sq. ft. of space.

POLLACK-BLUM's is the new name for five stores in Baltimore, Md. The merger includes three Pollack furniture stores located at Howard and Saratoga Sts., Eastpoint Shopping Center and Westview Shopping Center and two Blum stores located at 300 N. Gay St. and 7521 Pulaski Highway. *Alexander Hamburger* is general manager of the new firm.

OHRINGER'S HOME FURNITURE CO. has moved to new quarters at Sixth and Wood Sts., Pittsburgh, Pa. *Irving Abrams* is general manager. The firm also has stores in Braddock, McKeesport and Greensburg.

WHITE STORES, INC., formerly at 221 S. Canyon opened a new department store at 101 N. Canal St., Carlsbad, N.M. which features a complete furniture department. *Basil Welch* is manager; *DeWitt Wallace* is furniture manager.

CORDES APPLIANCE AND FURNITURE INC. opened a new store at 9306 Highway 67 at Jennings Road, Hathaway, Mo. The firm also operates a store at 5253 Natural Bridge.

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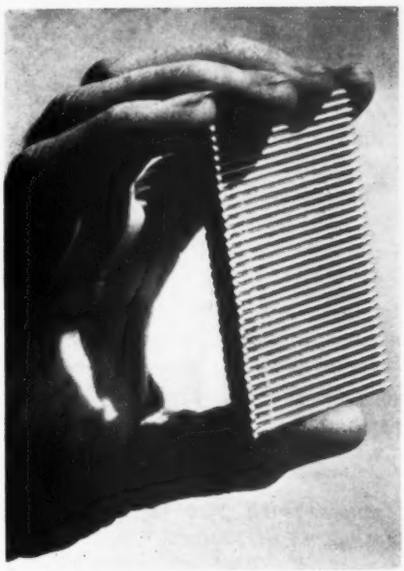


STRIP OF NAILS, for pinning case backs and other wood assembly. These "Cal-Nails" are driven by Calwire guns.

SPRING CLIP GUN, by Calwire, is designed for the attachment of sinuous-arc type upholstery springs. Great holding power is claimed for this assembly. Photos courtesy California Wire Products, Inc.

Because of the great number of improvements in air-powered stapling tools, we are presenting this series of articles based on a survey of equipment manufacturers

By LEONARD S. SIMON
Upholstery Construction Editor

Fasten With Speed—Safely

Among producers of automatic power fastening equipment, the Calwire Company, Visalia, Calif., is reportedly one of the fastest growing concerns in the field.

Brand-new from Calwire, and surely to be welcomed by upholstered furniture manufacturers, is the "Calwire Cyclamatic Spring Clip Gun", designated by the manufacturer as "Model 778-Cy." The Spring Clip Gun is an air-powered, automatic stapling gun, designed for the attachment of the sinuous-arc or serpentine type of seat and back springs. Use of the gun, promises the manufacturer, not only decreases the production time formerly required for this operation, but by firing two legs of a staple which are automatically indexed into the spring clip, it insures double the holding power. And there is no possibility that sheer or leverage can dislodge the spring clip, they say, due to the fact that each clip is held in a secure position by the two legs jointed to the top, or crown, of the staple.

Attachment procedures are fast and efficient, notes Calwire. After the spring clips are affixed, the sinuous-arc spring is placed in position . . . the second stage of the indexing, and the Cyclamatic clip gun then secures the spring in place. It is complete assurance, they claim, of positive fastening action and stability of the entire assembly.

Another step forward in fastening mechanization is the Calwire air-powered Cyclamatic "CY-2" gun. According to Calwire, this new tool is utilized in the permanent attachment of jute webbing to furniture frames. The gun shoots a one inch wide, Calwire "Type S-2" staple, manufactured of round 16 and 14 gauge wire. Because of the rounded design of the staple crown, says a company spokesman, there is no possibility of the jute webbing being cut by the fastener, thus preventing construction sagging . . . a common complaint.

For the attachment of pre-built spring units to furniture frames, Cal-

Continued on Page 38

STAPLING WOOD FRAMES with "Cyclamatic" air tacker speeds this operation for an upholstered furniture manufacturer. Supplier claims tools to be light and powerful.

Marketing

Exhibitors Announce "Red Carpet" Committee

By Morton R. Cohen

CO-CHAIRMAN Morton R. Cohen is executive vice-president of Douglas Furniture Corp., Chicago.

EXHIBITOR AIDS include envelope stickers, advertising plates, mailing pieces, based on the theme illustrated above.

Most seasoned furniture men will agree that any market reflects to a considerable degree the industry's economic "climate"—in the 60 days prior to the opening days. Although this is written during that very period, all indications point to the 1960 Winter Markets riding in on a wave of good business which should carry well into the year ahead. Calamity or catastrophe seems highly unlikely.

Since this is the case, what can we—as manufacturers do—to sell more in 1960—and help our customers to sell more? We know that the Market centers—and our particularly important market—the American Furniture Mart—do a blanket job—in advertising and publicity. But you can't expect them to do it all. Such markets have been a long time in building their prestige to the point they are an institution.

A group of exhibitors in the American Furniture Mart got together during the Fall market, and agreed that if we all started tooting our horn—on the same tune—we'd build business for ourselves, and also for each other. What's good for the exhibitors is good for the Mart—and vice versa.

Three co-chairmen were named: Sol Diamond, Reading, Pa., was named one co-chairman—representing the upholstered field—and the East. Kenneth Booth, Vice-President, Ward Manufacturing Co., Fort Smith, represented case goods—the South and the West; and the writer, metal furniture—the Midwest. L. Gerald Koch, President of Columbia Bedding Co., has agreed to act as Treasurer—and Clark B. Kelsey, Jr., of the Mart's ad agency, is Secretary. That's the official family of the Red Carpet Committee—from which American Furniture Mart exhibitors have already received several mailings. Many co-operators are now assured.

Furniture Mart President, Frank Whiting, agreed to under-write preparation costs if we thought a sufficient number of exhibitors would appreciate and get behind a co-operative project. The Mart advertising counsel went to work and came up with a symbol and theme which we accepted—"The Red Carpet is Out for You." The aim or sub-theme is, "Sell More in '60."

We selected a dozen promotion pieces and helps from more than a score of layouts submitted. These went into production—and were sent to exhibitors—to adopt or adapt.

Under ordinary conditions, any individual manufacturer's results will depend on these factors: 1) *The Merchandise itself.* Is it styled right? Priced right? Sold right?

2) *Display.* One of the nation's canniest producers has said that display is a part of design,—and unless furniture is shown against the right colors, lighting, and accessories, it won't do as well as it would under such ideal conditions.

3) *Promotion.* As in the matter of display, the thinking that goes into market promotion is more important than spending the most dollars. What incentives will attract the most customers—and the most prospects into our market spaces? (The Mart has a plan, independent of the Red Carpet campaign, for that, too.)

We do not ask all exhibitors to pick up "canned" material. If they do the group job their own way, all will benefit. But a minimum of three pre-market ads or mailers on the same theme—per exhibitor, cannot help but make a terrific impact on the industry.

You can't expect the market centers to do all the promotion. Even if material were *given*—instead of *supplied at cost*—you would find a good bit of tie-up material going to waste. That is why exhibitors are asked to put a little of their own money—in addition to postage—into this project. If enough of them do it, it can't fail. ■

Fasten With Speed

Continued from Page 37

wire has developed their "Model AR-1". This gun, they point out, has a long 7 inch nose, making it possible to get at the deep coil units for secure attachment to the frame.

According to the manufacturer, assembly of furniture frames on a production basis is a very simple procedure with Cyclamatic equipment. Calwire staples range in crown widths from ⅜" to 1", they report, and they come in leg lengths from ½" to 1¾". The staples are manufactured of 14 and 16 gauge wire, in both rosin coated and galvanized finishes. Additionally, Calwire produces a variety of "Calnails" with a "T" head, in leg lengths from 1¼" to 2", in two different wire sizes, and in various finishes such as cement coating and acid etching. Calwire claims that the fabrication of a furniture frame—irrespective of the type of work—can be accomplished through the use of Calwire Cyclamatic equipment. Whether it be the fabrication of the main frame, build-up for arms, or the hard-to-reach places of fastening support glue blocks, Calwire points to the Cyclamatic as the ever-flexible tool, capable of performing with complete satisfaction in the areas of quality and speed.

What are some of the advantages of the Calwire Cyclamatic power gun? It's a light, portable tool states the maker, which enables the worker to

take the device to the job . . . rather than the job to the device. It is said to be a high velocity and flexible piece of equipment, with a weight average of 5¼ pounds, and the capability of firing well over 300 fasteners per minute, although it is inconceivable that any operator could fire a device at this rate of speed.

Calwire's report concludes on a note of safety. This safety factor is ten-fold, they categorize, due to the fact that the Cyclamatic is designed on a high velocity principle, and once the fastener leaves the nose, or breech of the gun, it loses 60 per cent of its power in two feet, with 90 per cent of the speed expended at four feet.

Comparison of Finishes

Continued from Page 33

style, in rooms other than the dining room. More demands have been put upon the finish of furniture to stand rough treatment, cigarette burns, and the spilling of various liquids.

Due to the inadequacy of available finishes to stand this sort of treatment, there has been a rapid movement toward substitute materials such as plastic tops of printed wood grain. These finishes, sometimes referred to home entertaining and eating, buffet as the "cafeteria effect," have a monotonous repetition of pattern, a "flat" look, with no depth and play of light as is present with real wood.

This may suffice for medium to low priced furniture but it is entirely unsuited for the authentic designs in the higher grade lines. Here only real wood will do. What would the elegance of the Contessa Collection of Mount Airy Chair Co. be without the exact patina and finish, required for that classic Italian design? How would it look with an imitation top?

Compare the "feel" of a plastic top with that of a hand rubbed wood finish. The smoothness and warmth of the rubbed finish could be the closing factor in any sale.

Fortunately the chemists both here and abroad, have been making great progress with new resins. They have found that polyester resins, epoxies and amines, both in combination with nitrocellulose and without, give improved finishes, matching the hardness and mar resistance properties of plastic surfaces.

All these required a catalyst of some type to complete their polymerization. The rapidity of jell formation after the catalyst was added presented problems in application. We found that in Europe they were applying polyesters with a new type of machine, the curtain coater, so we bought one, the Steinemann machine. This machine made it possible to keep the two components apart until they were applied on the wood and thus avoid the jell problem. The spray gun manufacturers developed catalyst guns; we got one of these.

At the same time the Fine Hardwoods Association was investigating the possibility of improving the burn resistance of veneers by inserting a thin metal sheet under the face veneer in plywood to carry away the heat from a burning cigarette laid on the surface. First attempts with this construction, called the "Beauty Guard Process" presented problems of gluing the foil to the veneer and to the cross banding or core stock. Continued research has now solved this problem and the Fine Hardwoods Association can supply information on how to produce it satisfactorily.

The combination of new finishes and Beauty Guard construction proved to be the answer to this de-

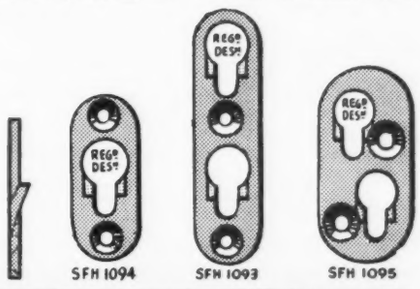
Continued Next Page

SELBY KEYHOLE FITTINGS

For Knock-Down chair construction.

Special headed screws engage through the holes, giving rigid wedge action jointing.

Rustproofed.



SELBY FURNITURE HARDWARE COMPANY
11 West 17th St., New York 10, N. Y.

Future Dates for Managers

WINTER FURNITURE MARKET Exhibitor Building Waters Building Grand Rapids, Michigan	**January 4-13**
WINTER FURNITURE MARKET American Furniture Mart Merchandise Mart Chicago, Illinois	**January 4-15**
WINTER FURNITURE MARKET NORTHWEST FURNITURE MFRS. ASSN. Field Artillery Armory Seattle, Washington	**January 10-12**
WINTER FURNITURE MARKET Atlanta Merchandise Mart Atlanta, Georgia	**January 11-15**
WINTER FURNITURE MARKET Los Angeles Home Furnishings Mart Los Angeles, California	**January 17-22**
FURNITURE & HOME FURNISHINGS MARKET Dallas Trade Mart Dallas Home Furnishings Mart Dallas, Texas	**January 18-22**
SOUTHERN WINTER FURNITURE MARKET Southern Furniture Exposition Bldg. High Point, North Carolina	**January 18-22**
WINTER FURNITURE MARKET Western Merchandise Mart San Francisco, California	**January 24-29**
INTERNATIONAL FURNITURE FAIR Cologne, Germany	**February 11-15**
SALES AND MARKETING DIVISION SOUTHERN FURN. MFRS. ASSN. Hotel Robert E. Lee Winston-Salem, North Carolina	**March 2-3**
PRODUCTION & COST DIVISION SOUTHERN FURN. MFRS. ASSN. Hotel Robert E. Lee Winston-Salem, N. C.	**March 4-5**
SPRING BOSTON FURNITURE SHOW Commonwealth Armory Boston, Massachusetts	**April 4-7**
SPRING FURNITURE MARKET Atlanta Merchandise Mart Atlanta, Georgia	**April 18-20**
SOUTHERN SPRING FURNITURE MARKET Southern Furniture Exposition Bldg. High Point, North Carolina	**April 23-29**

Finishes

Continued from page 39

mand for highly mar proof, burn resistant, solvent resistant finishes. Tests run by the TECO Laboratory as well as by the finishes manufacturers proved that here was a finish that would do all that plastics do and have certain additional advantages:

First and foremost it permits the furniture manufacturer to go back to real wood with its many advantages in construction, machining, finishing and lower cost; it permits more variety in design; it adds the plus factor of advertising real wood instead of imitations; it gives a finish that can be patched or repaired, a quality that is not possible with plastics.

Recent developments now indicate that these new finishes can be sprayed with ordinary spray equipment. "Pot life" or freedom from jelling has been extended to one day and several months, depending on the formulation. A comparison of these new finishes with ordinary and improved lacquers, synthetic and plastic finishes is shown on the chart *(Editor's note: See chart at the beginning of this article).*

Of particular interest is the fact that the polyesters are of such high non-volatile content (solids) when applied, that woods like mahogany, walnut and oak need no longer be filled; the pores are filled with the polyester! The polyester panels illustrated contain no filler. I don't need to point out to you the tremendous improvement in quality of finish as well as cost saving gained by eliminating our old headache, the filler.

A supplementary discovery that the consumer survey brought out was that for the most part retailers do not use finish as a sales point. They appear to be woefully ignorant of the finish and its characteristics. The National Paint, Varnish & Lacquer Association is planning a Wood Finishes Educational Program which will:

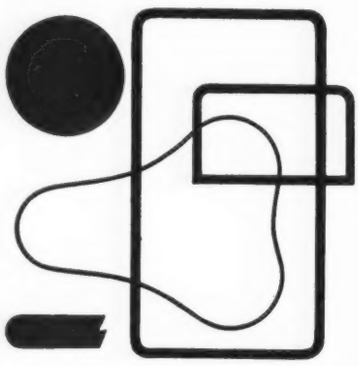
1. Educate the consumer on what to expect from finishes and how to care for them.
2. Educate retail sales personnel on the advantages and care of furniture finishes so they can use this information to complete more sales.
3. Educate retail warehousemen on the proper preparation of furniture for display and delivery.
4. Educate retail advertising personnel on what features of furniture finishes to advertise and how to best advertise them.
5. Interest furniture manufacturers in using their sales personnel to emphasize to retailers the finish on the furniture.

The Fine Hardwoods Association is currently conducting a similar course across the country for retail furniture salesmen which encompasses the basic knowledge of color, room planning, furniture styles and their coordination, the primary wood species, and the important story of the finish.

With the consumer demanding a better finish, the retailer using finish as an important factor in his selling, it is going to become more and more important that the right finish is chosen for each piece of furniture. It can make the difference between success and failure in your design. It can give "eye appeal" to the cheapest construction and simplest style.

Without exception the finish can upgrade your furniture and be the key to bigger sales! ■

MAGIC IN GLASS



These "MIROX" glass tops and mirrors come from Belgium's largest . . . and one of the finest glass plants. Available in all styles and shapes, each of surpassing beauty and quality, you'll marvel at the magic that makes them available at such modest prices.

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Permanent Show Room
Designer Display Case, One Park Ave., N.Y.C.

Particle Board

Continued from page 31

The *extrusion* boards have less shrinking and swelling in thickness than do the flat-bed type of boards, whereas the latter are superior in width and length stability. Both, however, are quite satisfactory and can be used with confidence.

With respect to bending strength (modulus of rupture), it is unnecessary for the user of furniture core stock to specify more than 2500 pounds per square inch. As a matter of fact, many satisfactory cores are being produced from particle board of far less than 2500 psi modulus of rupture. Usually, the low strength boards are confined to tops that are cross-banded. Also, boards manufactured by extrusion process probably should always be cross-banded.

Smoothness is difficult to specify and, at present, there are no recognized standards. About the best that can be done is to specify the kind, shape and size of materials than can appear on the surface.

For tops that are to be cross-banded, extreme smoothness – other than that obtained with good sanding –is of no concern. The cross bands, as with lumber cores, will cover minor crevices.

An entirely different matter is the core board that is to be used without cross-banding. Probably the only type of particles suitable for this quality of product is a fine flake for both faces. The center of the board can be of several materials such as splinters, shavings or coarse flakes.

Although fine sawdust would provide a good surface material, its fibers are so short that the strength of the board is unnecessarily weakened. There are several other technical reasons why sawdust is not good material for particle board faces or interiors.

Whatever the material, the faces for unbanded core stock must be of sufficiently fine particles so that crevices between them are reduced to usable limits. Also, the faces must be thick enough to prevent sanding through them. In sanding, the same amount of material must be removed from both faces. This is good practice in preparing any core panel, but absolutely essential when using particle board not to be cross-banded.

Many furniture manufacturers,

when they look at their waste pile, become intrigued with the idea of manufacturing their own board from the waste. Quite a few of them have sufficient resources to warrant purchasing equipment for this purpose, and several are already doing so. But there are a great many more who should always buy their board, even though it may mean destroying the waste pile for no useful purpose.

With respect to raw material in particle board manufacture, even the smallest practicable plant for single shift operation requires from five to six tons of material daily. This is quite a lot of material, especially when it is considered that probably not more than 50 per cent of the entire waste pile is suitable for a good grade of board.

From the production end of such a plant, about 4,000 square feet of ¾ inch board will issue each eight-hour production day. A plant to produce this will cost not less than $300,000—but it will produce board of the very highest quality at a cost of about $100 per thousand square feet.

These economics will vary somewhat for each operation and, of course, if the plant can be operated on a three-shift basis, the margin of profit will be substantially increased. However, for most of the medium sized furniture plants, much of their product would have to be sold—a point to be considered most carefully before adding particle board manufacture to that of furniture. ■

Vinyl Quality

Continued from page 23

Other tests include high speed dynamic flexing and slow flexing; low temperature requirements (ten degrees lower than specified); and block tests in circulating oven with applied weights for tackiness at 180° F. Spue testing is made with cigarette paper under heat. Weight tolerances must also comply with standards.

An interesting part of Federal's production control is the use of a "Beta Gauge," a measuring device that calculates within 1/1000th of an inch the coating thickness of vinyl as it is processed. Each device costs from $12,000 to $25,000. Federal claims that points of weakness, because of undercoating, and points of bulk, because of overcoating, are eliminated. Measurement is recorded by pulsations created by a radio-active pellet passing through produced vinyl material.

Industry practice calls for not more than six acceptable visual defects per roll . . . such as grease spots or dust (normal production hazards). Federal limits them to three. All flagged defects are marked and an allowance of one-fourth to one yard is made.

Federal's vinyl upholstery has been granted the "Seal of Quality" of the United States Testing Company, Inc.

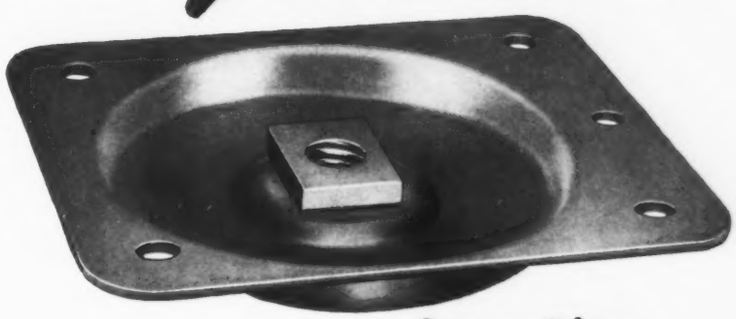
A. A. Dunham, assistant manager of the certification department, United States Testing Company, Inc., described his company's program as a quality control re-check.

"At the outset of the program a plant inspection was made which included the quality control procedures in operation at Federal Industries.

"Samples for Certified Merchandise, Seal of Quality of the United States Testing Company, Inc. are drawn at random from current stock. At least

Continued next page

NEW, LOW PRICES ON *Victor* PLATES!



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Same Quality...
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***Same Famous* No. 7 and 7A Clinch Nut Plates You Are Now Using (Patent No. 2,784,930)**

ONLY THE PRICE HAS CHANGED on plates #7 and 7A **3½¢** ea. in drums of 2,000

PLUS 10% discount on orders of 25,000 or more!
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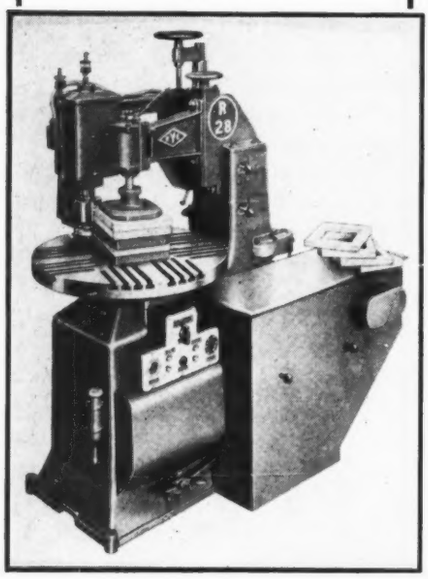
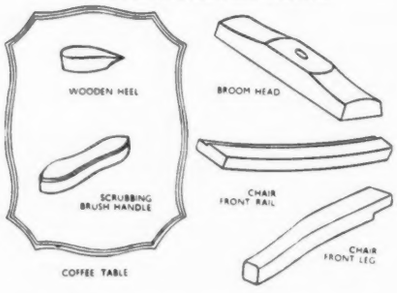
RYE •



The RYE type R.28 Auto Shaper is designed for the high speed production of smaller shaped wooden articles such as coffee table tops, chair legs and rails, brush handles, novelty items, etc.

A fine finish, requiring little or no sanding, is assured by the high speed of the cutterhead, operated from a high frequency convertor at 9000 RPM.

TYPICAL SHAPED PARTS



Full provision made for "jigging" and station set-ups through the T-slotted table and air operated center clamp and individual clamps. Complete range of table speeds with selected "slow-up" points provided.

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ANgelus 8-3111
WOOD AND METAL WORKING MACHINERY
PORTABLE TOOLS

Vinyl Quality

Continued from preceding page

once a month one of our representatives visits the plant to supervise taking of samples. Particular care is taken to sample a cross section with regard to intended end use of the product.

"This sampling is then followed up at intervals on the end products themselves. Representatives of United States Testing Company, Inc. purchase these products on the open market. This serves as a check to insure that the material actually going into the end item still meets the quality standards. At the same time we review a cross section of the quality control records and compare notes on the results of previous test samples with Dr. Seaman, Director of Research. The correlation of results has been pleasing," Mr. Dunham added.

"Our contract requires that Federal Industries continually meet the performance standards in these periodical tests. Only as long as they do may they continue the use of the seal."

The United States Testing Company, Inc., has 79 years of experience in testing and product evaluation. Its services are available for any product or manufacturer. It uses test methods complying with standards established by the American Standards Association, The American Society of Testing Materials, Society of the Plastics Industry, Military Specifications, Federal Specifications of Commercial Standards (U.S. Dept. of Commerce).

As a merchandising aid to users of Federal vinyl upholstery fabrics and their dealers, Federal Industries supplies hang tags, imprinted with U. S. Testing and Parents' Institute seals. The company permits tagging only where proper construction of vinyl materials is used. Where borderline cases exist, i.e., using underweight goods or light construction in crucial areas, no tags can be used, according to the Federal spokesman.

Probably no other single factor influences customer satisfaction as cover performance of upholstered furniture. A manufacturer who buys vinyl on price alone is asking for trouble for himself and his dealers. It behooves every furniture manufacturer to be wary of so-called "cheaper" vinyls . . . they may boomerang with costly claims for adjustment and loss of customer good will. ■

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RATES:
Per line (minimum 5 lines) no display..$ 2.00
Per inch (9 lines)..... 15.00

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HERE'S A CHANCE IN A LIFETIME

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Manufacturer-Distributor is interested in acquiring additional Companies and or Products in Furniture, Juvenile Furniture, and Toys. Will Design, Finance, and Guarantee Volume Sales. Substantial Proposition only. Reply full details. Box 330 c/o Furniture Design & Manufacturing, 608 S. Dearborn, Chicago 5, Ill.

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AMERICAN FURNITURE MART

WINTER MARKET

JANUARY 4-15, 1960

THE RED CARPET IS OUT FOR YOU!

Let's Roll Out The
RED CARPET
For The 1960
WINTER MARKET

AMERICAN FURNITURE MART

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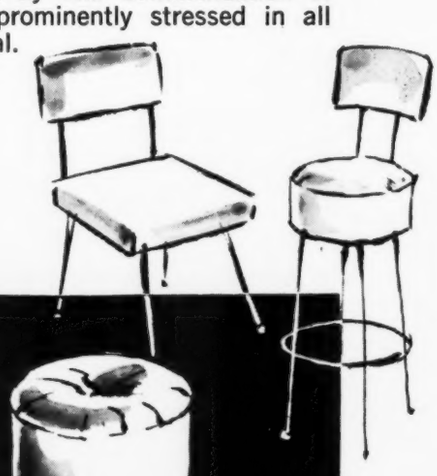
Chairs, Headboards, Dinette Sets, Hassocks and Stools, styled in certified FEDERAN, combine the very best of vinyl fabric with the most effective promotional assistance in reaching the volume buyers and the consumers.

FEDERAN's rigid quality control program, attested to by the independent laboratories of the United States Testing Co. and by The Commendation of Parents' Magazine is prominently stressed in all sales assistance material.

Patterns and colors created by **Raymond Loewy**



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